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## Better Outlook for Machine Tools

THE figures for new orders during May last which were issued last week by the Machine Tools Trades Association, would appear to indicate a welcome improvement in the prospects of the United Kingdom machine tool industry. In the domestic market there was an increase of over 20 per cent on the volume of new orders in April, but of greater importance is the fact that export orders in May were also higher and the value of the total order book increased by £1,250,000 to £51,660,000. Although not too much importance should be attached to figures for an individual month, it is believed that on this occasion the improvement is in line with the general trend in the industry. The total volume of net new orders during May was £7,770,000, of which home consumers accounted for £6,170,000. The corresponding figures for the previous month were £6,300,000 and £4,940,000. The new orders for export were £1,610,000 in May compared with £1,370,000 in April. It is known that since the beginning of the year enquiries have been increasing and it is now clear that these have resulted in firm orders. To some extent, it is probable that the revision of investment allowances in the Budget was responsible for the improvement which occurred in May. It would have been reasonable to withhold

new orders until the Budget provisions were known. On the delivery side the Machine Tool Trades Association gives home deliveries at £5,230,000 in May as against £4,850,000 in April, but the export figure declined from £1,460,000 to £1,290,000. The value of the total order book of the industry is now £51,660,000 or nearly 50 per cent of the peak reached in August 1956 when it was £104,900,000.

## Eastern and North Eastern Region Engineering Departments

THE joint Mechanical & Electrical, Carriage & Wagon, and Road Motor engineering departments of the Eastern & North Eastern Regions of British Railways have been replaced by separate organisations in each of the two regions. The drawing office, and development and supply sections will remain in Doncaster. At Headquarters in London there will be a Locomotive Engineer, a Rolling Stock Engineer and a Plant & Road Vehicle Engineer. The Electrical Engineer (New Works) is already in London, and there will be a Mechanical & Electrical Engineer (Development). All main works will come under a Mechanical & Electrical Engineer (Workshops), Doncaster. There will be a Works Manager at Doncaster and another at Stratford, each in charge of the Locomotive, Carriage & Wagon Works. Maintenance work outside main works will be under the control of a District Running & Maintenance Engineer, who will be part of each Traffic Manager's team, and will be responsible for locomotives, rolling stock, outdoor machinery and road motor vehicles. The new Chief Mechanical & Electrical Engineer, Eastern Region, is Mr. T. C. B. Miller, formerly Motive Power Officer of the Great Eastern Line. An illustrated biography of Mr. Miller is included in the Personal Section in this issue.

## New Assistant to General Manager

ANOTHER new position on the Eastern Region, British Railways, is that of Assistant to the General Manager (Special Duties). He will act as Chairman to the Diesel Locomotive Panel, advising the General Manager on diesel traction matters. He will assist traffic headquarters to introduce the new maintenance arrangements and will help the handing over of certain headquarters motive power responsibilities to the new Mechanical & Electrical organisation. Mr. E. D. Trask, formerly the Motive Power Superintendent, Eastern Region, will fill the newly-created position of Assistant to the General Manager (Special Duties). His biography also appears elsewhere in this issue. Certain other appointments on the Eastern Region are discontinued; these are: District Motive Power Officer, District Outdoor Machinery Engineer, Divisional Carriage & Wagon Engineer, and District Road Motor Engineer. The District Running & Maintenance Engineers will receive technical guidance from the Chief Mechanical & Electrical Engineer, who will be responsible for prescribing standards of maintenance, and ensuring their implementation.

## Chairman of the Weir Committee

THE Weir Committee report of 1931 on main-line electrification in Great Britain is recalled by the death of Lord Weir of Eastwood, recorded elsewhere in this issue. The other members of the committee were Sir Ralph Wedgwood, Chief General Manager of the London & North Eastern Railway, and Sir William McLintock, the accountant. The report estimated that the net annual saving from electrification of all lines would be some £17.6 million, or 6.7 per cent on capital expenditure of £261 million. The figures were based on estimates of conversion of principal lines of the former G.N.R. and of the L.N.W.R. north of Crewe. Many people considered them optimistic. The committee stressed that the full benefit of electrification could be realised only by complete replacement of steam haulage. Although the advantages of diesel traction were already apparent on some railways in Europe and North America, the "oil engine" was stated to have inferior torque characteristics. To overcome this, the report stated, the "oil-electric" locomotive had been devised though for busy lines it would seem more economical to place the diesel engines in generating stations. The main disadvantages of

electrification were stated to be the heavy capital cost and vulnerability in a national emergency. The last war showed the latter to be less than had been feared.

### Overseas Railway Traffics

**E**AST African Railways & Harbours approximate railway revenue for the month of June, 1959, amounted to £1,461,000 compared with £1,420,000 earned during the same period last year, an increase of £41,000. The greater part of this increase was due to goods traffic receipts, which at £1,147,000 were £45,000 higher than in June, 1958. In addition, there were small increases in other coaching traffic, livestock, and miscellaneous receipts, which amounted to £8,000. Canadian Pacific Railway revenue for the six months ended June 30, 1959, amounted to \$241,706,692 compared with \$231,818,154 in the corresponding period of 1958. Railway expenses were \$224,700,212 (\$215,802,007) resulting in net earnings of \$17,006,480 (\$16,016,147). Operating revenues of the Canadian National Railways for the half-year ended June 30, 1959, were \$365,428,000 compared with \$342,078,000 in the first six months of 1958. Expenses amounted to \$366,805,000 (\$362,377,000) resulting in a net income deficiency of \$1,377,000 compared with a deficiency of \$20,299,000 in January—June, 1958. Railway operating revenues of the International Railways of Central America for June amounted to \$1,050,888 compared with \$1,112,652 in June, 1958. The net revenue from railway operations showed a loss of \$107,198 (\$115,508 loss) and the net income a loss of \$99,245 (\$114,067 loss).

### East African Railways Proposed Link Line

**F**OR many years, considerable thought has been given to the construction of a link between the East African Railways & Harbours Central Line and the Tanga Line in Tanganyika. Such a line would complete the link between Tanganyika and the Kenya and Uganda Lines. Since 1924 several surveys have been made, but for one reason or another each route proposed was found to be unsuitable. In 1958 it was decided to review the position once again, and the first factor which had to be taken into account was that of road competition. To attract the majority of traffic, particularly the highly rated goods, the route would have to be short. The shortest connection would be to take off from the Tanga line at Mnyusi to join the Central line somewhere between Dar-es-Salaam and Ruvu. It is estimated that such a line would be 117 miles long and would cost about £2,000,000. This would make the distance from Moshi to Dar-es-Salaam by rail only 342 miles, which is shorter than the road route, and make the rail distances to Tanga and Nairobi much closer to the road distance. At its last meeting the East African Transport Advisory Council approved the expenditure of £18,000 for an engineering survey of the Ruvu-Mnyusi route. This should reveal whether the link is a sound economic proposition.

### Modernised Stores Organisation

**A**N efficient stores organisation is essential to a modernised railway and, by modernising and re-equipping its Stores Depot at Gateshead, the North Eastern Region of British Railways has taken a substantial step in this direction. The Gateshead depot was previously the centre of the stores organisation of the former North Eastern Railway, but during recent years its responsibilities had diminished and parts of the Region had been supplied from stores depots situated outside regional boundaries. Now, the whole of the North Eastern Region's requirements for general traffic and electrical stores will be met from Gateshead where some 5,000 items of stock valued at £100,000 will be maintained. Annual turnover will approximate a value of £600,000. The depot will also handle certain technical items for use in the Signal Engineer's Department in the Newcastle area. The modernisation has included considerable conversion; the installation of modern racking and lighting; streamlining of layout and the introduction of mechanical handling appliances. Staff facilities have been modernised, and employment provided for five additional men drawn from redundant workers at Gateshead Locomotive Works. Illustrations are included elsewhere in this issue.

### Immigration and Customs Formalities

**W**HY passengers who land at British packet ports should have to submit to the inconvenience and, often, delay of immigration formalities and Customs examination of hand baggage before entering boat trains has long perplexed many people. These examinations often are conducted in boat trains leaving French and other Continental ports. When Mr. Philip Bell, M.P. for Bolton East, asked in the House of Commons last month whether, to encourage tourist traffic, the examination of baggage could be done in the train, he received the familiar answer. The Economic Secretary to the Treasury, Mr. F. J. Erroll, said that the conclusion had always been reached that in the circumstances in this country the examination of baggage would inconvenience passengers and frustrate effective Customs control. He presumably had in mind the sometimes thorough search of hand baggage in the confined space of a coach built to the British loading gauge. Evidently the Treasury considers that preventing smuggling and the entry of undesirables are more important than increasing the attractiveness of surface travel to Britain. Tourist traffic is important to Britain, and many tourists prefer sea and rail travel, even if airlines should convey them all at peak periods. The matter should be reconsidered.

### Modernisation at Leeds

**I**N our June 12 issue, shortly before publication of this journal was interrupted by the recent printing dispute, we made editorial reference to the railway modernisation planned for Leeds. This project is described and illustrated elsewhere in this issue. Several of its aspects are of particular interest—the bold use of fewer, but longer, platforms; the emphasis placed on the cementing of good relations with existing and valued customers; the provision for expansion and modification to changing conditions; minor importances such as the ease of cleaning windows; the generous attention to customers' requirements for the parking of motor-cars. This last point and the co-operation with police and civic authorities exercised by the Region bring also to mind the fact that not only these bodies but also the whole municipality of Leeds give complete support to the scheme, an accord which cannot lightly have been achieved. The North Eastern Region of British Railways is to be congratulated on its forward thinking and the goodwill it so obviously has engendered in the area covered by its influence.

### Promoting Travel in Kent

**T**RAVEL in parts of Kent served by the newly-electrified lines east of Gillingham, and by some suburban lines previously electrified, has been made yet more attractive by a new ticket facility. Besides frequent, fast, and comfortable trains British Railways, Southern Region, now offers a day's unlimited travel at the modest price of 15s. Available on any one day, excepting Saturdays, in the period to September 11, the "South Eastern Tourist Ticket" covers the area bounded by Dartford, Bromley South, Sevenoaks, Maidstone, Sheerness, Ramsgate and Dover. The intensive service of electric trains allows a large variety of programmes to be arranged and a considerable mileage to be covered in one day. The tickets can be bought at principal stations in the area and are obtainable at any other station by giving 24-hr. notice. When the cost of travel by private motorcar and other forms of transport, comfort and speed of the train, and the distances are taken into account, 15s. should prove an attractive and economic price.

### Improving L.T.E. Metropolitan Line Services

**T**HE various measures, on which work has already begun, to improve facilities on the Metropolitan Line of London Transport Executive between Harrow and Amersham, Chesham, and Watford, are described elsewhere in this issue. One result will be a service of multiple-unit electric trains of remarkable speed and frequency for a residential area which remains very largely rural in character. Stations between Amersham (exclusive) and Aylesbury, now served mainly by trains of compartment stock hauled by electric locomotives between Baker Street (or Liverpool Street in the peak hours) and Rickmansworth, where the change takes place to or



from steam traction, will be served by London Midland Region trains from and to Marylebone. These probably will be diesel worked, though no decision has been made yet between multiple-unit sets and locomotive-hauled trains. The major works are bound to cause occasional delays to trains. As was done in the case of the Southern Region Kent Coast electrification, the problems involved are being explained to passengers, with a request for their forbearance when they may be inconvenienced. The well-written pamphlet handed to travellers on the Metropolitan Line is excellent public relations work.

### Foundry Reorganisation at Crewe

FOR the production of steel castings in Crewe Works, British Railways, London Midland Region, two basic electric furnaces, each of 3½-4 tons capacity, will be provided in a new building being erected in the steel foundry. The existing rotary-type furnaces are life-expired and supplies of suitable anthracite are less readily available than hitherto. The new plant will ensure melting at a higher temperature and a better quality of castings for cylinders, axleboxes, wheel centres, and so on. Also considerable economies will be achieved by using scrap of a lower grade than was possible with the acid-type rotary furnaces. The new building will enable all the melting to be conducted under conditions of improved ventilation away from the main foundry to which fumes will not penetrate. Two 10-ton electric overhead travelling cranes, provision for the storage of scrap metal and other melting requisites, and space for re-bricking the roof rings of the furnaces are features of the reorganisation. Provision will be made for housing of the furnace transformers and switchgear and for furnacemen's amenities complying with regulations of the Factories Act.

### Indian Railway Inspectorate in 1957-58

WE have received from the High Commissioner of India in the United Kingdom a copy of the Report of the Chief Government Inspector of Railways on the working of the Railway Inspectorate for the year ended March 31, 1958. During that year Mr. P. N. Mabayi retired from, and Mr. R. C. Sood was appointed to succeed him in, the post of Chief Inspector. The total route-mileage of lines under the jurisdiction of the inspectorate at the end of the year was 34,883 miles. 97.94 per cent of this total was composed of Government-owned lines, and 98.66 per cent were under Government management.

The Inspectors of the four Circles, Bombay, Calcutta, Lucknow and Bangalore, carried out detailed inspections of five new sections of railway with an aggregate route-mileage of 103.52 miles, of which the Quilon-Kottayam extension of the Southern Railway accounted for 59.32 miles. Another 36.56 miles were composed of the two initial end sections of the Khandwa-Hingoli metre-gauge link. They subsequently authorised the opening of the above total mileage for the public carriage of passengers, sanctions later confirmed by the Railway Board. Additionally, some 40 miles of existing line were similarly inspected and sanctioned for doubling and 24 miles for electrification. Other sanctions were accorded for the diversion of about 11 miles of existing lines, and for the conversion of 51½ miles from Gudur to Renigunta on the Southern Railway from metre to 5 ft. 6 in. gauge. As from April 1, 1957, the 26-mile Kalighat-Falta Light Railway was closed to passenger traffic.

During the year 14 Company Railways and 5,757 miles of Government Railways were inspected. Also, on the recommendation of the Inspectors the Railway Board sanctioned various types of locomotive and rolling stock on different railways, including "CC" diesel locomotives on the E.R. and diesel railcars on the N.E. and S.Rs. Rail-motor Jeeps were also approved for service on the S.R. and 12-ft. wide Japanese multiple-unit stock on the C.R.

During 1957-58 there were 18 train accidents into which formal enquiries were held by Government Inspectors. Of these 13 were collisions, three were derailments, one was caused by the felling of a tree fouling a running line, and one was a fire in a mail train. No fewer than 17 occurred on 5 ft. 6 in. sections of line; the 18th was a side collision with a

lorry on a 2-ft.-gauge light railway. Three of the other collisions were due to the failure of drivers or motormen (and guards) to observe the procedure laid down for passing automatic signals in the "on" position, resulting in end-on collisions causing 25 deaths and 71 injuries. A side collision was also due to a driver failing to observe rules for passing defective signals at "danger" (5 killed, 47 injured). Two collisions caused by drivers running against signals resulted in injuries to 107 persons. The wrong setting of points was responsible for three collisions in which 3 people were killed and 83 injured. Another collision, in which 4 were killed and 17 injured, was caused by fly-shunting in the face of an approaching train.

On a 1 in 90 up-gradient a goods train with assistant banking engine in rear stalled and the crew released the vacuum brakes on the wagons causing the train to run backwards and collide with a passenger train, injuring 29 of its passengers. The leading engine had been booked for defective brakes but they had not been attended to. A head-on collision between an express and a stationary passenger train at Mohri on the N.R. caused 36 fatalities and 85 injuries as well as £26,000-worth of damage to stock and track. This was still sub-judice in the Allahabad High Court and the findings of the enquiry had not been published.

On November 23 the Bombay-Calcutta mail was derailed as a result of tampering with the track. The engine and first eight coaches were derailed, four falling down a 30-ft.-high embankment and being completely demolished. Nine people were killed and 107 injured. Another derailment was due to an engine brake-hanger falling on the track, and a third was caused by the sharp flange of a coach wheel. The mail train fire was caused by the careless lighting of a paraffin stove by a passenger; one passenger lost his life and 12 were injured.

Heavy rain and floods were responsible for interruptions of train services on 14 different sections of line. The period of interruption varied from five to 72 days, the latter being on the 2 ft. 6 in. gauge Kalka-Simla mountain line.

### Analysing Wagon User

THE statement by British observers that the German Federal Railway organisation for control and distribution of wagon stock is "unquestionably superior to anything to be found in this country" is challenging. So is the fact adduced by Mr. L. S. Sherwood, Senior Assistant, Finance Department, British Transport Commission, in an article in the current issue of *British Transport Review* that British Railways use four times the wagon stock and two-and-a-half times the wagon capacity to carry much the same quantity of traffic as do the railways of Western Germany.

On British Railways 30 per cent of mileage run is empty; on loaded journeys the wagon carries 65 per cent of its weight capacity; nearly 20 per cent of receipts from a wagonload must be deducted for providing and maintaining the wagon and for interest commitments. The reduction visualised in the British Railways modernisation plan of 32 per cent in the operating stock of wagons, which recently stood at 1,000,000-odd, would reduce annual costs by about £19 million, or 12s. a journey.

The large number of wagons inherited by British Railways, from the days of private ownership, involved much uneconomic shunting and empty mileage to keep them running for their owners. This factor, and the principle of charging on the ability to pay, and not on the cost of transport, have resulted in a much larger fleet than would otherwise have existed. The present wagon fleet represents more than one-half of the gross book value of British Railways rolling stock, and over one-third of the value of the Commission's rolling stock, vehicles, ships, plant and equipment. Despite this it is at present impossible, Mr. Sherwood maintains, to account for all the movements of each wagon.

Statistical information available on the time a wagon spends in terminals includes "terminal discharge time," "terminal user time," and "percentage forwarded loaded to total number required." Outside terminals, it has always been harder to use statistics effectively to explain how wagons spend their time. If 10½ days is taken as the average round time per loaded journey, four days are spent in terminals and over half-a-day on repairs, leaving nearly six days to explain the time the wagon spends on the road. A simple calculation, using

B.T.C. published statistics for 1957, shows that a wagon spends on the average 76 min. every weekday on trains. This splits into 56 min. for loaded wagons and 20 for empty. Of the six days, then, only a modest 7 hr. or so is spent by a wagon on running lines. After eliminating repair time, terminal time, and train time, what is left must be spent on shunting and marshalling, or by wagons being stabled, loaded or empty.

The causes of stabling include inability of depots or consignees to accept traffic, heavy passenger traffic, and congestion occasioned by bad weather. The wagons concerned are not always accounted for in the stock report, but it is known locally when such stabling takes place. Mr. Sherwood suggests that to measure what is taking place will help to answer the problem of what the wagon does between terminals. It would also help to allocate the cost of stabling.

As to time spent in marshalling yards, he observes that the quality of work may suffer in attempts to keep a yard fully occupied. The quantity of work done in relation to the expenditure on engines and staff is affected by circumstances external to a yard, and the figures now available do not really reflect yard efficiency. "In theory, a marshalling yard should either be fully occupied or cease to exist. To see that it gets its full quota of work, in the form of wagons to be marshalled, is important." What is needed, he suggests, is a continual record of what wagons enter a yard, how long they spend there, and what is done with them. This will help to allocate yard costs to the various flows of traffic. He points out that until automatic numbertaking aids are introduced—and they are not provided for in the modernisation plan—the best that can be done is probably to make maximum use of regular records within the limits of what the normal staff can do.

On the other hand, before spending large sums on equipment such as teleprinters or electronic computers to help obtain and analyse information, there must be a clear idea of exactly what measurements of work done in the form of costs and statistics might suit managements best at all levels. Measures of quality of work in a depot must be treated with caution. They are based on the number of wagons on hand at a terminal at one stated time, usually 10 a.m. It cannot logically be assumed that this represents the average number on hand during a 24 hr. period. The choice of one time only may mean for instance that improved transits of inward loads, causing an arrival before 10 a.m. instead of after, can produce a higher terminal discharge time than before, though the working of the terminal remains just as efficient. As wagons arrive and depart in groups on trains on a limited number of occasions in a day, it might perhaps be possible to obtain an average of the number on hand during the period.

Mr. Sherwood adds that it is false to treat "terminal user time" as now compiled on British Railways as part of total turnaround time. The latter, he states, is the time between start of successive journeys. Terminal user time, as now presented, is the ratio between all wagons forwarded and all wagons on hand, loaded or empty. On the present basis, the average is about 2.6 days. It would be about four days per loaded journey, and that would be the figure to relate to turnaround time. The supply of wagons to collieries is based on the average time needed to load wagons, *i.e.*, on a standard loading time coupled with the expected volume of forwardings. It is suggested that a statistic of "terminal loading time" at other terminals might be useful, to express the efficiency of loading arrangements and check the working away of loaded wagons. A time-user analysis of wagons in terminals, as he rightly states, would be hard to carry out, and adequate local supervision seems to be the answer.

On British Railways, for wagon user outside terminals, there is much information on train working: train-miles, train-engine-hours, and so on. Time spent by wagons in trains is so small in relation to turnaround time, he maintains, that no useful object would be achieved in measuring it regularly. A more useful statistic might be to measure throughout transit times. He is right in his view that "train-miles per train engine-hour" is one of the most significant figures for management purposes. Faster trains often convey fewer wagons. Nevertheless increase in "train-miles per engine-hour" will show a tendency for wagon speeds to increase.

In the U.S.A. equipment has been introduced which is claimed to show the correct supplies and proper flows of empty wagons day by day. In present conditions in Britain, attempts to do this must still leave unanswered the question whether

what is being done is the most economical method. The American use of electronics aims at proving scientifically what is the most economical method. Briefly, it involves the assessment of the empty wagon handling activities of each area and the estimated volume and rate of loading and unloading activities, plus the actual movements of empty wagons into and out of the area. This information goes into a computer, with the cost element for empty wagon mileage, and the apparatus analyses the information to produce an answer which represents the best balance between cost and service for each area and for the whole railway. Conditions in Britain probably vary much more than they do in America, and what is economic in theory one day may be quite uneconomic the next, because of variations in power and staff available.

### Swiss Federal Railways in 1958

THE annual report of the Swiss Federal Railways for 1958, produced in the informative style adopted for some time past, shows an improvement of 1 per cent in passengers carried, 221,600,000, over the previous record of 1957, but that less favourable trade and industrial conditions brought freight loads down by 6.9 per cent to 24,200,000 tonnes. Working receipts fell by 3.4 per cent to fr. 830,820,143; 42 per cent came from passenger traffic. Other receipts brought the credit side of operating account to fr. 911,241,052. Total working costs were fr. 698,799,157, leaving a surplus of fr. 212,441,895. Actual working expenses, apart from administrative charges, came to fr. 630,679,155, maintenance absorbing fr. 198,343,717. Total charges to profit and loss came to fr. 230,804,725, and total income to 240,721,977; fr. 8,000,000 were placed to the special reserve required by law—additional to the ordinary ones included in the charges mentioned—leaving fr. 1,917,272 at the disposal of the Federal Assembly. Although still better than in the very favourable year 1956, the situation nevertheless contains sources of anxiety. Staff costs are rising disproportionately to the numbers employed. A further reduction in working hours is imminent, and expected this year to add some fr. 23,000,000 to the charges.

The construction programme is, therefore, being directed specially towards increasing mechanisation and reducing working expenses, by the use of centralised regulation of train and locomotive running, ticket printing machines, teleprinter working, mechanical loading and track laying equipment, and so on. Comparatively little progress has as yet been made in implementing measures sanctioned by the Assembly intended to relieve railway funds of charges not in fact arising directly from their working, while the long-debated question of transport co-ordination remains much where it was. Of the 1,808 miles worked—57 per cent single line—only 32 remain steam operated. Ordinary renewals of fixed equipment absorb about 55 per cent of the sum allocated annually, the rest becoming available for more extensive works. Rebuilding of the stations at Berne, Zurich and Basle is, however, specially financed. When renewing bridges, tunnel linings, track, and so on, full use is being made of the research carried out in association with the International Union of Railways (U.I.C.). Much special construction was carried forward during 1958 and the completion of the Châteline tunnel and associated works will enable the Vernier-La Praille connecting line at Geneva to be brought into service this autumn. A small amount of doubling was effected and more is in progress. A new bridge at Basle will enable the section between the Swiss and German stations to be doubled. In April, 1958, the new 2½-mile Kerenzerberg tunnel on the Zurich-Chur line, was pierced and the doubling of this section, with new bridge over the Linth canal, is being pushed to completion. Elsewhere, as on the Gotthard route, important bridge replacements were undertaken.

Electrical signalling installations replaced mechanical at 14 places and 144 colour-light signals were installed; these now total 5,698, while 2,697 signals remain of mechanical pattern, although sometimes power operated. Interlocking block replaced telegraph working on 40 more route miles, making 1,376 in all, of which 658 were single line. The telephone and teleprinter systems were further improved. Seven-level crossings were either closed entirely or replaced by bridges and the use of electric approach warnings was extended. Improved designs of points have been adopted and some are in

use, but a considerable time must elapse before they can be provided at the 18,000 locations; heavier rails and sleepers, also to U.I.C. standards, are being introduced where traffic is heavy and concrete sleepers are on trial on some sections. Particular attention is being directed to obtaining the best possible running conditions, considered essential to maintaining the attraction of rail travel, and welded track is being progressively extended. Work on the new underground power station at Göschenen continued according to programme; at existing power stations capacity was increased, while improvements were effected in the sub-stations and transmission network. New electric locomotives and improved rolling stock of several types were obtained, with a new road vehicle ferry-boat for the Lake of Constance service.

### British Transport Commission Traffic Receipts

THE only encouraging feature of British Transport Commission freight receipts for Period 8, the four weeks ended August 9, is the increase in British Railways mineral traffics. At £2,783,000 these exceeded the corresponding total for 1958 by £233,000. They were still much below the total (£3,356,000), itself disappointing, for the eighth period of 1957. No comparison is possible with other weeks of the year because of the incidence in Period 8 of the bank holiday and of the slackening of activity in August, when some industrial plants close for holidays. At least the revival in the steel industry seems to be having some effect in increased despatches.

Railway merchandise receipts for Period 8 continued below last year's figure, despite efforts to capture traffic, including quotation of rates with the freedom now accorded under the Charges Scheme and much-improved services. The decline in coal class traffic continued. It was foreseen, and the low level of coal departures over the next few years has been taken into account by the Commission in estimating its future receipts in relation to plans for development. Merchandise and mineral traffics will have to be much increased to afford a reasonable railway goods revenue.

	Four weeks to August 9, 1959		Incr. or decr.	Aggregate for 32 weeks		Incr. or decr.
	1959	1958		1959	1958	
<b>Passengers:</b>						
British Railways	£000 16,202	£000 16,324	£000 - 122	£000 86,715	£000 86,850	£000 - 135
London Transport:						
Road Passenger Services	4,277	4,213	+ 64	33,297	27,377	+ 5,920
Railways	1,762	1,773	- 11	14,397	15,172	- 775
Provincial & Scottish buses	5,979	5,877	+ 102	37,115	36,815	+ 300
Ships	1,481	1,367	+ 114	4,557	4,266	+ 291
<b>Total Passengers</b>	<b>29,701</b>	<b>29,554</b>	<b>+ 147</b>	<b>176,081</b>	<b>170,480</b>	<b>+ 5,601</b>
<b>Freight, Parcels &amp; Mails:</b>						
British Railways:						
Merchandise & livestock	6,387	6,600	- 213	58,684	64,162	- 5,478
Minerals	2,783	2,550	+ 233	26,271	28,390	- 2,119
Coal & coke	5,635	6,354	- 719	67,316	77,056	- 9,740
Parcels, etc., by coaching train	3,955	3,983	- 28	32,314	31,922	+ 392
<b>Total Freight, British Railways</b>	<b>18,760</b>	<b>19,487</b>	<b>- 727</b>	<b>184,585</b>	<b>201,530</b>	<b>- 16,945</b>
Others*	3,928	3,735	+ 193	33,182	32,710	+ 472
<b>Total Freight, Parcels &amp; Mails</b>	<b>22,688</b>	<b>23,222</b>	<b>- 534</b>	<b>217,767</b>	<b>234,240</b>	<b>- 16,473</b>
<b>Total</b>	<b>52,389</b>	<b>52,776</b>	<b>- 387</b>	<b>393,848</b>	<b>404,720</b>	<b>- 10,872</b>

\* Road haulage, ships, and inland waterways freight.

British Railways passenger receipts for the period were below last year's figure. Bank holiday traffic reported to be not particularly heavy, but it is disappointing that revenue from excursions was not higher during some fine weather. Great efforts have been made to create excursion traffic. On the other hand there was presumably a seasonable fall in long-distance business travel. The growth of private motoring on long-distance journeys on holiday no doubt has had effects on railway receipts. There is evidence of increased road travel reported in week-end traffic jams in the West Country—which must have caused many motorists to wish that they had gone by train. It would be interesting to know from which services the increase in ships' passenger receipts was derived.

### PERCENTAGE VARIATION 1959 COMPARED WITH 1958

	Four weeks to August 9	32 weeks to August 9
<b>British Railways:</b>		
Passengers	- 0.7	- 0.1
Parcels	+ 0.7	+ 1.2
Merchandise & livestock	- 3.2	- 8.5
Minerals	+ 9.1	- 7.4
Coal & coke	- 11.3	- 12.6
<b>Total</b>	<b>- 2.3</b>	<b>- 5.9</b>
Ships (passengers)	+ 8.3	+ 6.8
<b>British Road Services, Inland Waterways and Ships (cargo)</b>	<b>+ 5.1</b>	<b>+ 1.4</b>
<b>Road Passenger Transport, Provincial &amp; Scottish</b>	<b>+ 1.7</b>	<b>+ 0.8</b>
<b>London Transport:</b>		
Railways	- 0.6	- 5.1
Road Services	+ 1.5	+ 21.6
<b>Total</b>	<b>+ 0.8</b>	<b>+ 12</b>
<b>Aggregate</b>	<b>- 0.7</b>	<b>- 2.6</b>

### The Northern Pacific Railway

(By a correspondent)

SINCE October, 1957, we have heard many laments about the precarious state of American railroads. Mr. Robert Macfarlane, President of the Northern Pacific, was able to strike a more cheerful note in his annual report for 1958. The year marked the 75th anniversary of the completion of this northern transcontinental line, which connects the Great Lakes and Minnesota with the Pacific coast. Happily, 1958 earnings were the highest since 1943. Though operating revenues were lower by \$4.7 million, or 2.6 per cent, expenses were cut by \$9.6 million, or 6.3 per cent. Net income of \$22 million was 4 per cent above 1957, and justified a cash dividend of \$2 a share, which is likely to be maintained in future.

Last year's operating ratio was just short of 80 per cent, against 83 per cent in 1957. The gross freight train load was a record at 2,985 tons, 70 tons above the 1957 average. Another new record was set up for the output of freight train operation, which rose to 62,720 gross ton miles per train hour, or 7 per cent above 1957. The improved operating results were due partly to a complete changeover to diesel motive power at the beginning of last year. At the end of the year all movement over 6,830 miles of road was made by 612 diesel units. One result of the change was the scrapping of the world's first all-roller bearing locomotive, No. 2626. That was a 2-8-4 steam engine, known originally as "Timken's No. 1,111," and tried on 12 railroads before the Northern Pacific bought it in 1933. During 24 years' life this famous engine must have covered a great mileage. An astonishing saving in manpower was made last year. The average number of employees was reduced from 21,401 in 1957 to 18,076, a difference of 3,025, or 14 per cent. The total 1958 payroll was \$102 million against \$109 million in the previous year, a 6 per cent saving though the hourly wage rate increased 73 per cent over the past 10 years. Another source of economy on U.S.A. railways is centralised traffic control. The Northern Pacific hopes to save \$46,000 a year by installing C.T.C. in the Stampede Tunnel through the Cascade Mountains and at least five times that amount by an extension of 67 miles from Garrison to Missoula, in western Montana.

In November, 1958, the Northern Pacific reduced its east-bound freight transcontinental schedule by 24 hr. The annual report has a striking picture of this important train crossing the Clark Fork river in Montana. Mr. Macfarlane is optimistic about traffic prospects for 1959. He expects grain, forest products and manufactured goods to move in greater volume. The Regional Shippers Advisory Board for the Northwest Territory is of the same opinion and forecasts an increase of 16 per cent in wagon loadings during the second quarter of the present year. Let us hope that both estimates are correct.

The Northern Pacific is first and foremost a freight line. Its 1958 freight revenue of \$160,207,000 dwarfed passenger train revenues (including mail, parcels, and restaurant car receipts) of \$13,532,000, which were \$700,000, or nearly 5 per cent, less than in 1957. Passenger takings were about \$6,120,000, a decline of \$830,260, or 11 per cent. Authority is being sought to withdraw a number of unprofitable services, while the report states that the "North Coast Limited" stream-



liner, run in conjunction with the Burlington Railroad from Chicago, "continues to win the enthusiastic endorsement of those who prefer to relax in luxurious comfort and safety when they travel."

Being one of the three railroads controlled by James J. Hill about the year 1900, the Northern Pacific has revenue resources arising from the industrial development of the North West, which he did much to foster. In 1958, gross revenue of \$22.4 million accrued from various interests such as the production of oil, the sale of timber from growing lands, and real estate rentals. As expenses were less than in 1957, net revenue before federal taxes was nearly 9 per cent higher at \$1,345,220. From time to time the Northern Pacific acquires sites at strategic points which may induce traders to establish new premises in its territory. Its report mentions the purchase last year of 116 acres at Kent, near Seattle, and also records

the leasing of another site of 60 acres at Seattle, which was purchased in 1953. The number of new industries located near the railway in 1958 was 55.

Another noteworthy activity is conducted by the Northern Pacific Transport Company, a wholly-owned subsidiary. In 1958 it provided a road service over 3,060 route miles, running 5,647,600 vehicle miles in six Northwest States. The Transport Company furnishes collection and delivery services for the railway at most stations and carries U.S. mail over 715 miles in the Far West. A scheme is now before the regulating authorities for substituting 640 miles of road services for train services in North Dakota which lose money. The economy of the U.S.A., and especially that of the Western States, was built up around the railway wagon. The prevailing tendency to curtail railway facilities and expand road transport may be fraught with danger, if it is pushed to an extreme.

## LETTERS TO THE EDITOR

(The Editor is not responsible for opinions of Correspondents)

### Southern Region Diesel-Electric Services

July 20

SIR,—The success of diesel-electric multiple-unit trains on the Hastings via Tunbridge Wells line and in Hampshire prompts the thought that the Southern Region might profitably introduce trains of this type to the Waterloo-Weymouth and Waterloo-Exeter main lines, not to mention its lines in Devon and North Cornwall.

For example, three-car sets of 600 b.h.p., perhaps doubled on certain timings, should do well on stopping and semi-fast services between Exeter and Salisbury, where their acceleration and balancing speed of 70 m.p.h. would help to keep the road clear for the steam-hauled through trains such as the "Atlantic Coast Express." Similarly, two six-car sets of 1,200 b.h.p., one starting at Salisbury and the other at Southampton or perhaps Bournemouth, could be coupled at Basingstoke to provide trains of 12 vehicles running through to Waterloo. Running fast between Woking and Waterloo such trains would reduce track occupation and ease the reversal problem at the London terminus besides being an economic proposition.

It would be interesting to know whether the Southern Region has some such development in mind, especially as further electrification westwards is not in prospect.

Yours faithfully,

G. A. ALLAN

17, Argyll Road, W.8

(Electrification westwards is under consideration.—ED., R.G.)

### Kent Coast Electrification

June 19

SIR,—I refer to your June 12 issue, and especially to the clear exposition of the plan of which the work at Shortlands Station is but a small part.

It would have encouraged the interest and understanding of the users of that station, as a recompense for no little inconvenience, if there had been posted up an outline of the final plan and the various interim stages, with a description of, and periodic progress report on, the various engineering operations.

It would moreover have made evident this second point. The operational advantages of the new layout are very clear, especially the easier curves and gradients of the up line to Victoria. From the point of view of the passenger, especially the traveller by the admirably frequent rush-hour service—which was at one time described as a gold mine for the Southern Railway—it has a considerable disadvantage. There are two island platforms at Shortlands. Formerly one was flanked by the two up and the other by the two down tracks. Now No. 1 is for main-line up trains only, both for Victoria and the City, while No. 3 is for up Catford Loop trains. Trains are frequent by each route. Because they get out of sequence, it is often not clear till the last minute which will be the more advantageous. To change platform now means a rush by a single subway under at one end of the station. Had crossovers at the junction

quarter mile east of Shortlands been entirely eliminated in the new track layout, which is not the case, the operating advantage would have justified the change.

The inconvenience to passengers could be mitigated by footbridges between the platforms, certainly one near the other end from the subway, and preferably a second near the middle of the platforms. There should also be broadcast announcements during the rush hours to supplement the present rather inadequate indication of trains.

Yours faithfully,

R. A. LAURENCE

76, Scotts Lane, Shortlands, Bromley

### Compensation by British Railways

August 18

SIR,—Dining car soup is not quite the liquid gold that the paragraph you quote from *The Times* on the Scrap Heap page of your June 26-August 14, issue might suggest.

Despite the traditionally generous attitude to bona fide compensation claims which British Railways have always displayed, Councillor Frank Davis did not receive £30 from us simply because of the embarrassment or inconvenience of being splashed, nor for the damage to his clothing alone. The figure was arrived at as a just recompense for an incident in which, in addition to the damage to his clothing, he was badly scalded and apparently put to considerable pain, inconvenience, and payment of medical fees.

Yours faithfully,

F. D. Y. FAULKNER  
Public Relations Officer

British Railways, Southern Region, Waterloo Station, S.E.1.

### Mechanical Coach Washing Plant in Bombay

July 25

SIR,—I refer to the article on the mechanical washing plant for electric stock in Bombay in your February 20 issue. I have, however, to draw your attention to an error in the opening sentence. This states that the plant was designed and constructed by the mechanical engineers and staff of the Western Railway. Actually, as the original script stated, it has been designed and constructed by traction engineers and staff of this railway.

I may add here that unlike the practice in the United Kingdom, the running maintenance of electric multiple-unit stock, including the mechanical portion, on this railway is the responsibility of the Electrical Department.

Yours faithfully,

D. D. SETHNA  
Public Relations Officer

Western Railway, Churchgate, Bombay



## THE SCRAP HEAP

### The Last Railway Horse ?

It seems that this is the final era of the railway horse. Nearly 9,000 horses were taken over by British Railways in 1948, but only 66 are employed today.

### Shortsighted Practice

In his annual report for 1957-58, the Chief Government Inspector of Railways in India states that the cause of an accident, in which 60 people were injured, was the driver of an express passing both starter and advanced-starter signals at danger at a station. His train collided with a stationary train stopped outside the next station after a passenger had pulled the communication chain. Though there was slight drizzle the signal lights could be seen from a reasonable distance. The driver's vision was examined after the accident, and was found much below normal. This was because he was not wearing the spectacles with which he had been passed fit for duty, nor were they in his possession. The report continues: "It was suspected that there were certain agencies who, for a small consideration, lent a pair of spectacles to railway employees appearing for the vision test, the employee returned the borrowed pair of spectacles to the party who had lent the same. In order to put an end to this dangerous practice it was recommended that the initials of drivers should be engraved on the edges of their spectacles' lenses. It was also recommended that suitable steps should be taken to ensure that the staff on duty provided themselves with two pairs of spectacles."

### Royal Yacht Conveyed by C.N.R.

The accompanying illustration shows the Duke of Edinburgh's yacht *Bluebottle* sliding easily into a specially converted Canadian National Railways motorcar

van for conveyance from Toronto to Vancouver. Loading was superintended by Surgeon-Lieutenant R. A. Coles, R.N., skipper of the yacht, and Mr. H. Bocknek, General Agent, Canadian National Railways, Toronto.

### Mixed Blessing

After an announcement given over the loudspeaker at Lancaster Railway station recently to a newly married couple, whose friends sent them congratulations, the station staff added their own:

"May their journey through life be as enjoyable as their forthcoming journey on British Railways."

The next announcement said that the London train was running 20 min. late. —From "Peterborough" in "The Daily Telegraph."

### Tennyson's Birthplace

Somersby Rectory, Lincolnshire, the birthplace of Alfred, Lord Tennyson, has been the subject of less railway publicity than other places associated with poets, perhaps because it is in what used to be thought to be a remote countryside.

The nearest station, as stated in the new British Railways, Eastern Region, poster, reproduced right, is Alford Town, on the East Lincolnshire (Boston-Grimsby) line of the former Great Northern Railway, which now enjoys a good train service, including some smartly-timed diesel railcars. The poet left Somersby some years before the line was opened through Alford in 1848, and it is doubtful whether he ever travelled on the East Lincolnshire line.

The reference he incorporated in the first "Locksley Hall" (1842) to "the ringing grooves of change" is the result of a mistaken notion that railway rolling stock ran in ruts or grooves. This, he said,



British Railways, Eastern Region, poster featuring Somersby Rectory, birthplace of Alfred Tennyson

was because at the time of his first railway journey, by the first train on the Liverpool & Manchester Railway in 1830, it was dark and the crowd round the train made it impossible to see the wheels. The poster reproduced at the top of this column was designed by Jack Merriott, R.I. Reproduction in six colours was by Jordison & Co. Ltd.

### Service

After so much criticism of British Railways, I would like to report a splendid achievement by the Eastern Region, when my family and I were on holiday at Yarmouth. My baby daughter can only be fed on milk from a special supply, so I asked if this daily supply could be provided without fail. The stations concerned were issued with instructions, were advised of arrival times, and the daily consignment was personally supervised from the Traffic Manager's office. All at no extra charge. The whole task was perfectly carried out.—From the "Daily Express."

### Branch Line Problems (1899)

In these days, when travelling facilities are so conspicuously a feature of our civilisation and so essential to our pursuit of both business and pleasure, it is rather humiliating to find England getting left more and more behind in the matter of efficient communication between city and suburbs or village and village. We are justly proud of our railway system, although we have our "most pathetic lines" and innumerable personal grievances of a more or less intolerable character, which we vainly seek to have redressed.—From "The Financial Times" of July 17, 1899.



Loading Prince Philip's yacht into a converted C.N.R. motorcar van

## OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

### EAST AFRICA

#### Deep Water Berths at Mombasa

The first of the four new deep water berths at Kipevu, Mombasa, Nos. 11 and 12, were handed over by the contractors, Christiani Neilson and J. L. Keir & Co. Ltd., to the East African Railways & Harbours Engineering Department, on June 20. Although the berths are not yet operational, Nos. 11 and 12 are complete with aprons, rail and crane tracks, fenders, and bollards. The contractors are erecting a single-storey transit shed, 199 ft. by 460 ft. on Berth 12, and tenders have been called for a further transit shed on Berth 11.

The new berths, each 600 ft. in length, have been designed to accommodate ocean-going vessels and will provide a minimum depth of 33 ft. at LWOST. Some 1,743 piles have been driven into the seabed. Contact with Kilindini has been provided with the Kipevu causeway-bridge which is in use for constructional traffic.

#### "Explorer" Tests Successful

As reported in our issue of May 15, "Explorer," the new 72-ton diesel-electric locomotive is undergoing trials on East African Railways & Harbours system on behalf of the builders, the British Thomson-Houston Co. Ltd. The first haul was 295 tons comprising tank wagons which it pulled from Mombasa to Mazeras 24 miles away. Since then it has pulled 435 tons successfully 107 miles from Mombasa to Voi.

On the footplate for the journey to Voi were Mr. W. T. E. Twining, B.T.H. Service Engineer; Mr. A. Newton, Lister-Blackstone (Rail Traction) Service Engineer; and Mr. E. Skinner, East African Railways & Harbours locomotive driver. On the first run to Mazeras Mr. A.

Towle, E.A.R. & H. District Mechanical Engineer was with Mr. Twining and Mr. Newton on the footplate.

### INDIA

#### Third Class Tourist Rail Cars

The Deputy Minister of Railways, Mr. Shah Nawaz Khan, stated recently that steps had been taken to provide additional third class tourist cars and tourist special trains. During the period January 1 to March 15, 1959, 20 tourist special trains had been run, including nine for tourists from overseas. Thirty-six broad-gauge and 16 metre gauge third class tourist cars had been ordered for construction during the second Five Year Plan. Thirty-six broad gauge tourist cars were being built by the South Eastern Railway departmentally. As regards metre gauge, 10 had been built by Kays Construction Co. (P) Ltd., Calcutta, and the balance of six by Messrs. Noorulla Ghazanfarulla, Allahabad.

### NEW ZEALAND

#### Cook Strait Railway Ferry

Mr. A. T. Gandell, General Manager, New Zealand Railways, has returned to New Zealand after a nine weeks visit to the United Kingdom and Europe investigating the design, operation, and management of railway-owned ferry vessels similar to the one proposed for the Cook Strait service. On his return Mr. Gandell stated that the basic design for the proposed ferry would not be completed by the Marine Department in co-operation with the Railways Department, but would incorporate many new ideas he had gained in his investigations while abroad. Before Mr. Gandell left New Zealand it had been announced that the

Railways and Marine Departments would prepare the basic design plans and specifications.

Referring to general railway matters, Mr. Gandell said that a daylight railcar service between Wellington and Auckland which would cover the distance in 10 to 10½ hr. was definitely practicable, and he would be reporting to Mr. Moohan the Minister of Railways on the possibility of providing a fast service. If New Zealand decided to go on the market for a railcar which could do the job, there would be keen tendering. Several British firms were now manufacturing railcars with underfloor engines which had previously been in short supply. The train journey by "Limited Express" between Auckland and Wellington now takes 14 hr. 15 min.

#### Accelerated Railcar Service

Railcar services on the Northland line from Auckland to Whangarei and Okaihau have been accelerated. A new timetable provides for cuts of up to 37 min. in schedules over the 195 miles. The fastest schedule, a Sunday service with 22 intermediate stops, allows 6 hr. 40 min. The principal daily service, leaving Auckland at 9 a.m., instead of 8.30, is allowed 7 hr. 3 min., and makes up to 32 intermediate stops. This railway, completed in 1925, is largely a succession of short, sharp gradients with a ruling inclination of 1 in 46 and large numbers of curves between 7½ and 15 ch. radius.

### WESTERN AUSTRALIA

#### Marshalling Yard at Leighton

Work will commence shortly on the construction of a new marshalling yard at Leighton, 9½ miles from Perth, to replace outmoded facilities at Fremantle North Wharf.

The new yard is being built at the request of the Fremantle Harbour Trust, which has stated that increasing rail traffic is causing congestion on the wharf, and is hampering operations. The level crossing at Leighton will be closed and a beach-front road will be extended from Marmion Street, Mosman Park, to Port Beach. Connection with the main Perth-Fremantle line will be made at Jarrad Street Cottlesloe.

### VICTORIA

#### Steel Telegraph Poles

Old steel rails are to be used to provide 6,000 telegraph poles for the Melbourne-Albury standard gauge project. The rail telegraph poles, ranging in length from 25 to 35 ft., will be produced at Bendigo North Workshops. A short length of rail will be welded to the main length to form a solid base and keep the pole firmly placed in the ground. Strengthening of the rail also prevents the whipping action that otherwise could occur under gusty weather conditions. Use of steel rails, instead of wooden poles, will save costs because they have a longer life; need no main-



The "Explorer" after reaching Voi, showing, left to right, Messrs. Newton, Twining and Skinner

tenance; and track gangs will not have to clear a space around the base of each pole during burning-off operations, as is the case with wooden telegraph poles.

## SYRIA

### "Taurus Express"

A through sleeping car from Haydarpasa (Istanbul) to Tripoli, running in the "Taurus Express" to Aleppo and thence over the Syrian and D.H.P. Railways is running experimentally until October 1, after a break of almost 10 years. Since the withdrawal of the previous through service in the autumn of 1949, "Taurus Express" passengers for Homs and Tripoli have been required to spend a night at Aleppo and continue next morning by a diesel car. The new service runs once weekly in each direction.

## SWITZERLAND

### Road Vehicles through Simplon Tunnel

Reference was made in an article in our March 20 issue, on transport of road vehicles through Alpine tunnels, to the possibility of providing loading and off-loading facilities at Iselle, near the south-eastern (Italian) portal of the Simplon Tunnel, instead of Domodossola, some miles further in the direction of Milan. Facilities are now being arranged at Iselle. They include premises for the Customs' services. The access road to the platforms will branch from the Simplon highway near the exit of the Iselle Tunnel (a short tunnel on the Italian side of the Simplon Tunnel), and will run alongside the lines from one end of the station to the other. All Swiss and Italian police and Customs' formalities will be carried out at Iselle. Railway tickets will also be issued there for the two directions. This means that formalities will be much

simplified for motorists, and that the Swiss Federal Railways will need only a loading and unloading platform at Brigue. This will be built in the north-east of the station, alongside the Rhone. It will serve at the same time for road vehicles moved by rail to and from Italy through the Simplon Tunnel and also to and from the Bernese Oberland and beyond via the Loetschberg Tunnel.

## ITALY

### Movement of Railway Wagons by Road

The State Railways are experimenting with an articulated wagon transporter built by the OMCA Company of Cremona. It is stated to be particularly suitable for conveying railway wagons by road over long distances. This is an important consideration, as many industrial plants are a considerable way from railheads.

## WESTERN GERMANY

### Revised Signalling at Cologne

The introduction of electric working on the left bank of the Rhine and two additional tracks across the Hohenzollern bridge at Cologne have necessitated considerable modifications to the signalling equipment, effected by Siemens & Halske A.G., the original suppliers. All earth return circuits have been eliminated. The east end of the main station has been provided with a new relay interlocking signalbox, using "geographical" circuits, controlling 47 signals and 27 points; about 830 movements of all kinds take place daily. Axle counters are used over the bridge instead of track circuiting. The previously existing multiple-aspect signals, installed for trial, have been changed to the standard Federal Railways home and distant pattern. There are now

in the Cologne area a total of 287 points and 251 signals controlled from Siemens type relay interlocking signalboxes; these deal with about 4,200 movements of all kinds every 24 hr.

## POLAND

### Express Railcar Services

The State Railways have introduced new express diesel railcar services on the lines Warsaw-Poznan, Warsaw-Bydgoszcz and Berlin-Warsaw-Brest. The Berlin-Brest service, known as the "Berolina," connects with an existing Soviet train from Brest to Moscow and reduces the overall journey time between Berlin and Moscow to just under 30 hr. with only one night's travel instead of two nights by the existing service.

## NETHERLANDS

### Vacuum Cleaners for Platforms

Consideration is being given to acquisition of mobile vacuum cleaners for platforms at certain stations of the Netherlands Railways.

## U.S.S.R.

### Trans-Siberian Service

The Wednesday departure of the Moscow-Pekin express has been diverted to the route across Outer Mongolia, leaving the main Trans-Siberian route at Ulan Ude; the three other weekly Moscow-Pekin trains continue to run via Harbin and Mukden (Shenyang). Although the service via Harbin has been accelerated on several occasions since its introduction in 1954, the diverted train gives a journey time 10 hr. 15 min. shorter than does the best train by the older route.

## Publications Received

*The Cost of Labour Turnover.*—London: British Institute of Management, 80, Fetter Lane, E.C.4. 9 in. x 6 in. 79 pp. Price 17s. 6d.—The fact that in some concerns labour turnover adds 10s. or more a week to the wage cost of each individual employed, came to light in an investigation carried out by the British Institute of Management, the results of which are published in this book. Companies faced with redundancy problems would do well to examine the cost of labour turnover when deciding whether to retain workers during a slack period or to discharge them and face the probability of having to recruit again in a few months. The volume contains a summary of the main conclusions of the investigation followed by an analysis of the cost of labour turnover. The B.I.M. method of costing is compared with other cost formulae in one of three appendices. The major considerations in costing labour turnover are amplified by detailed tables. The investigation was arranged with the Board of Trade and the published results were prepared under the guidance of a steering committee consisting of representatives of

the Institute of Cost & Works Accountants, the Institute of Personnel Management, and the B.I.M.

*Continuous Cast Bronzes.*—The uses to which Encon continuous cast phosphor-bronze, and gun-metal rods, tubes, and shapes can be put are described and illustrated in a 6-page publication issued by Enfield Rolling Mills Limited, Brimsdown, Enfield, Middlesex. There is an explanation of the method of continuous casting and some of the many shapes and sizes available are illustrated together with typical finished products made from them. The publication points out that when making quantities of parts concentricity and a known degree of accuracy of the internal and external dimensions of the bought material can influence costs, both by a reduction in the weight required and by economies in machining time. Encon is stated to be suitable for machining on automatic lathes. It is mechanically straightened to ensure no more than  $\frac{1}{4}$  in. arc depth in 5 ft. Unusual shapes shown in tubular form include small gear pinions, collars with internal splines and internal hexagon shapes, and multi-bore pipes. The specifications of materials available are

stated together with some of the chemical compositions and average mechanical properties. A table of Encon cast rod weights is provided in English and metric for estimation purposes.

*Lighting for Mines and Corrosive Conditions.*—A leaflet issued by Fibalite Limited, 117, Granville Street, Birmingham, describes lighting fittings which are stated to be dust-proof, acid-proof, and pressure-proof. The fluorescent luminaires are made throughout in glass-fibre reinforced plastic and are specially developed for industrial uses such as on railway sites, in mines and quarries, and wherever the atmosphere is dust-laden or corrosive. The leaflet illustrates a range of 2 ft. 20 W., 2 ft. 40 W., and 5 ft. 80 W. single- and twin-tube luminaires of the dispersive or distributive type. The design includes a visor of translucent Fibalux which has interlocked switching to enable work to be carried out on the fitting without switching off the circuit from which it operates. Support brackets also are illustrated, some of which allow for a wide range of adjustment for both type and size of girder and for the angle at which the fitting is to be mounted.



## Conveyance of Grain in Bulk

*Automatic equipment installed at Pickering Goods Station, British Railways, North Eastern Region*



*20-ton bulk grain wagon discharging into underground hopper. The 8-h.p. motor (right) drives the bucket and belt type elevator which conveys the grain into the overhead silo*

THE North Eastern Region of British Railways, in conjunction with T. Burgess & Sons (Millers) Ltd., of Thornton-le-Dale, near Pickering, has recently developed facilities at Pickering Goods Station for handling grain in bulk. Substantial quantities of both imported and home grown grain pass regularly from the Port of Hull and, in season, from the grain growing areas of the Eastern Counties to the Thornton-le-Dale mills of T. Burgess & Sons (Millers) Ltd. This was previously carried in bags which involved man-handling at each stage of movement, as well as the return of empty sacks. Now

the movement is entirely mechanised and at no stage is man-handling required.

The equipment installed at Pickering includes a hopper below rail level, an elevator, and an overhead silo, whilst at the mill a ground level hopper has been installed.

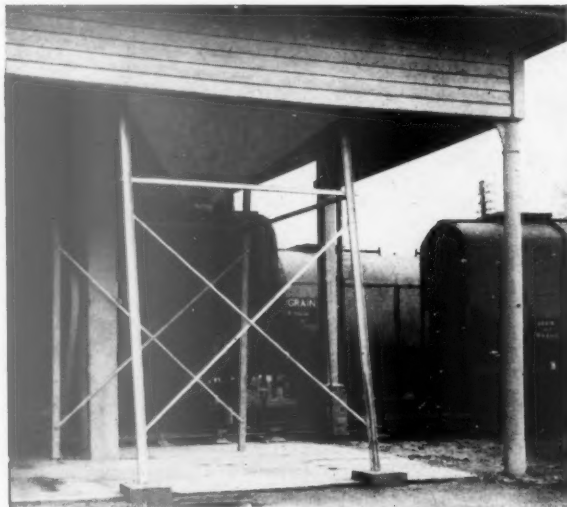
### Sequence of Operations

The conveyance by rail to Pickering is in 20-ton bulk grain vans which are filled by gravity from the silos at the port. On arrival at Pickering the grain is discharged from the vans by gravity direct into the sunken hopper and from there

it is conveyed to the overhead silo by a vertical belt and bucket type elevator driven by an 8-h.p. stationary petrol motor. The elevator works at the rate of 20 ton per hr. and is controlled by an automatic device which stops the elevator as soon as the silo is full.

Delivery from Pickering Station to the mills is by Burgess & Sons' own road vehicles which are eight-ton flat bottom tippers. The delivery vehicles are backed under the overhead silo and filled by gravity, an operation taking only four minutes. At the mills the delivery vehicles tip direct into the ground level hopper. The new arrangements have achieved considerable saving in transport and handling costs.

**GREATER USE OF L.T.E. SERVICES IN PEAK HOURS.**—The latest census by London Transport Executive of central London rush-hour travel shows that more people than ever are using public transport in peak periods. Morning peak passengers coming up to London increased by 4,400 to 1,148,000. Despite this the travel rush to work was a little easier than a year before. Over 10,000 people are now travelling later, between 9.15 and 10 a.m. The heaviest quarter-hour is still 8.45 to 9 a.m., when 174,500 people come into the central area by public transport. The evening peak is as intense as ever. 3,300 more people travel mostly in the half-hour from 5.30 to 6 p.m., when 331,000—one-third of evening peak passengers—leave for home. In the 15 min. between 5.30 and 5.45 p.m., nearly 184,000 people travel, half of them on the Underground alone. The census counted every passenger leaving or entering the central area by train and bus. It was carried out by a special squad of 100 checkers over several days in November, 1958, and the results have now been analysed. Railway passengers were counted at the 50 L.T.E. Underground stations and 15 British Railways stations in the central area.



*Discharge and delivery arrangements, showing loaded grain wagons in position*

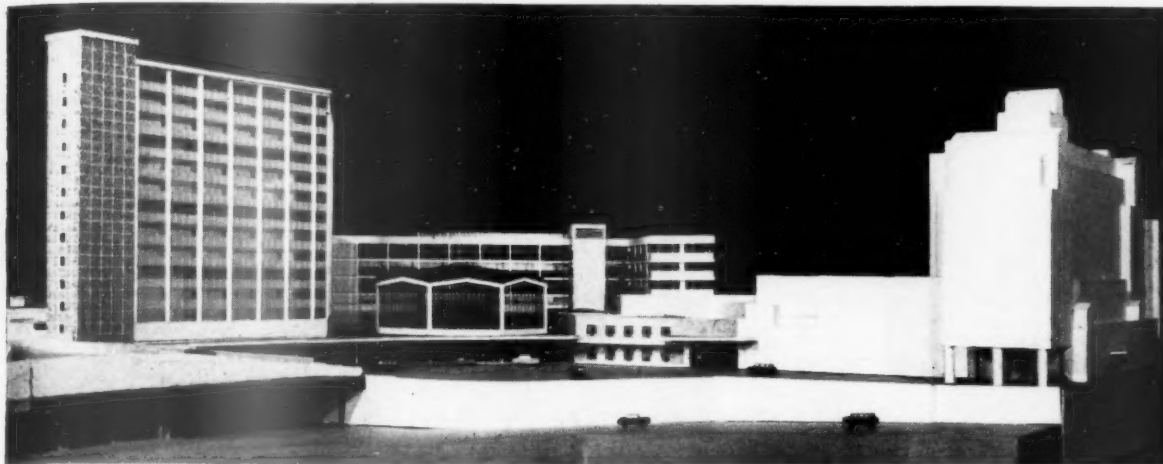


*Hopper-bodied tipping vehicle being loaded with grain from elevated silo*



## Proposed Combined Passenger Station at Leeds

*Ambitious and complex £4½ million project will remove long-resented inconveniences and facilitate growth of passenger and goods traffics*



*Model of front elevation of new station. To extreme left an office block flanks the car park over tram depot (entrance to which can be seen lower left). Extreme right is the Queen's Hotel*

THE existing railway complex at Leeds provides good examples of the difficulties which must accompany the modernisation of a pioneer structure, especially when that structure exists in a busy and crowded area.

Leeds has long suffered from a railway legacy inherited from the 'old private railway companies. Before grouping in 1923, Central Station was served by the Great Northern, Lancashire & Yorkshire London & North Western, and North Eastern Railways. Wellington Station was operated by the Midland Company. A new station, the present City, was subsequently developed from Wellington. This was jointly owned by the North Eastern and London & North Western companies.

Today, the intricate network of railways in and around Leeds is handled by these two stations, Central and City.

The only major improvement which has taken place since the railways were built has been the 1937 re-modelling of Wellington referred to above. Alterations then included the provision of a new concourse, Queen's Hotel, and the offices fronting on Aire Street. Facilities are inadequate and old fashioned, and operating difficulties grow with the steady increases occurring in all classes of traffic.

### Intensive Traffic

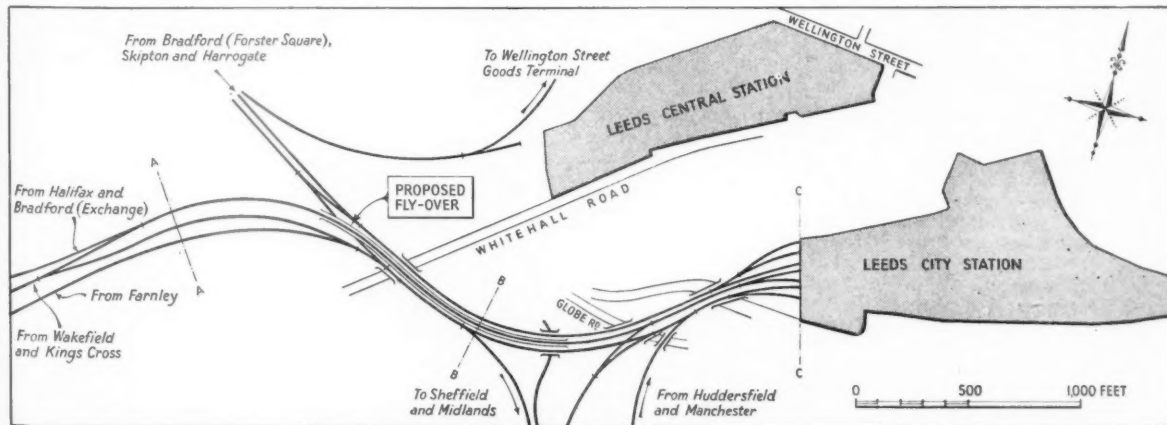
Last year, 2½ million passengers passed through Leeds Central and nearly 2½ million was handled by Leeds City. Between them, the stations dealt with 3½ million parcels, of which 1½ million were despatched by the Post Office. Post Office business bulks large and provides regular evening peak periods, and special arrangements will be made in

the new station to continue the good relations existing in connection with this important traffic.

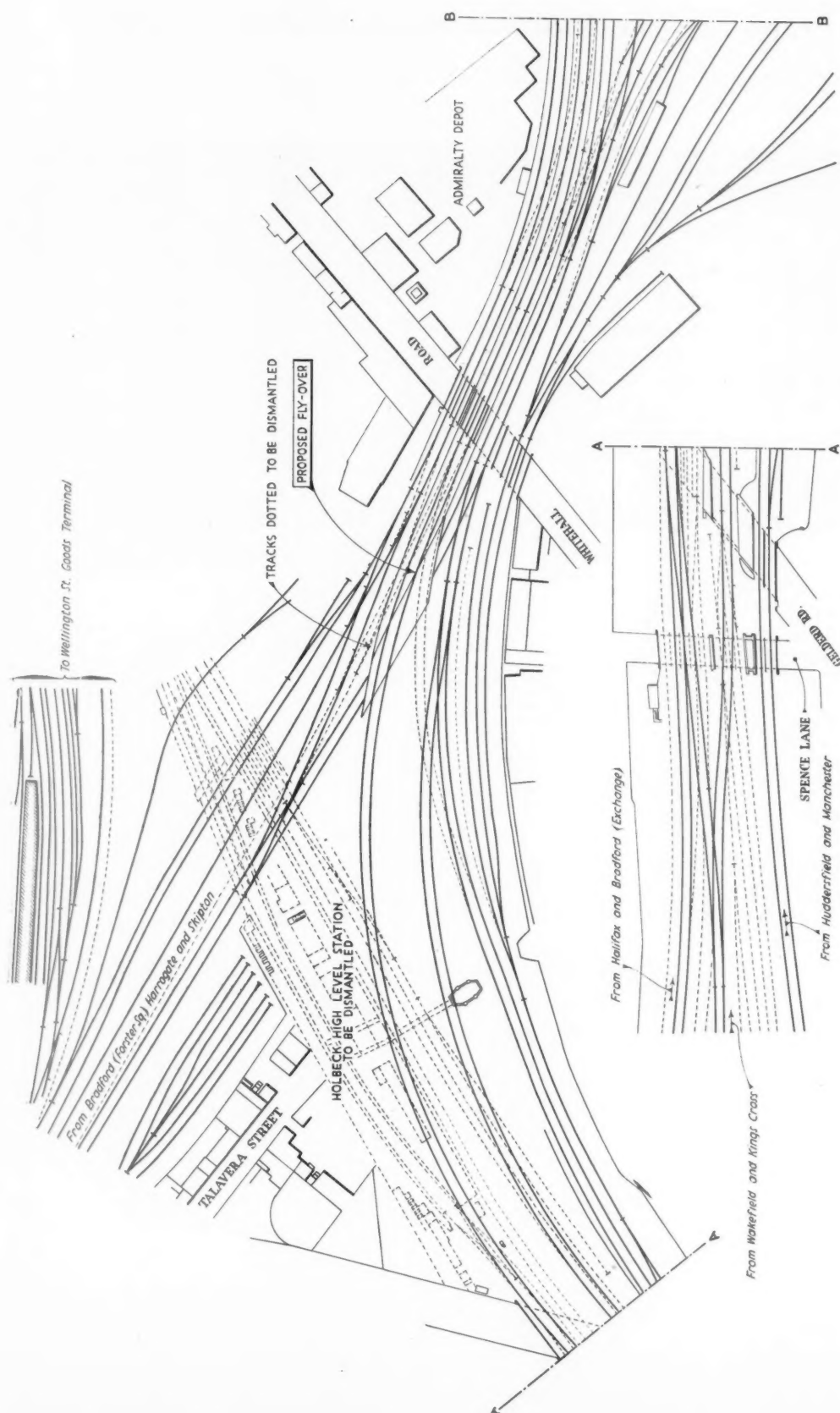
### Multiple-Unit Diesels

The success of the multiple-unit diesel trains has encouraged the Region to plan further diesel services between Leeds and Huddersfield and other industrial areas. These will be operated by inter-city services like those now running between Birmingham and South Wales, and Edinburgh and Glasgow. Diesel operation, using the modern facilities provided by the new station, will also permit better and more frequent services to be run between Leeds and London.

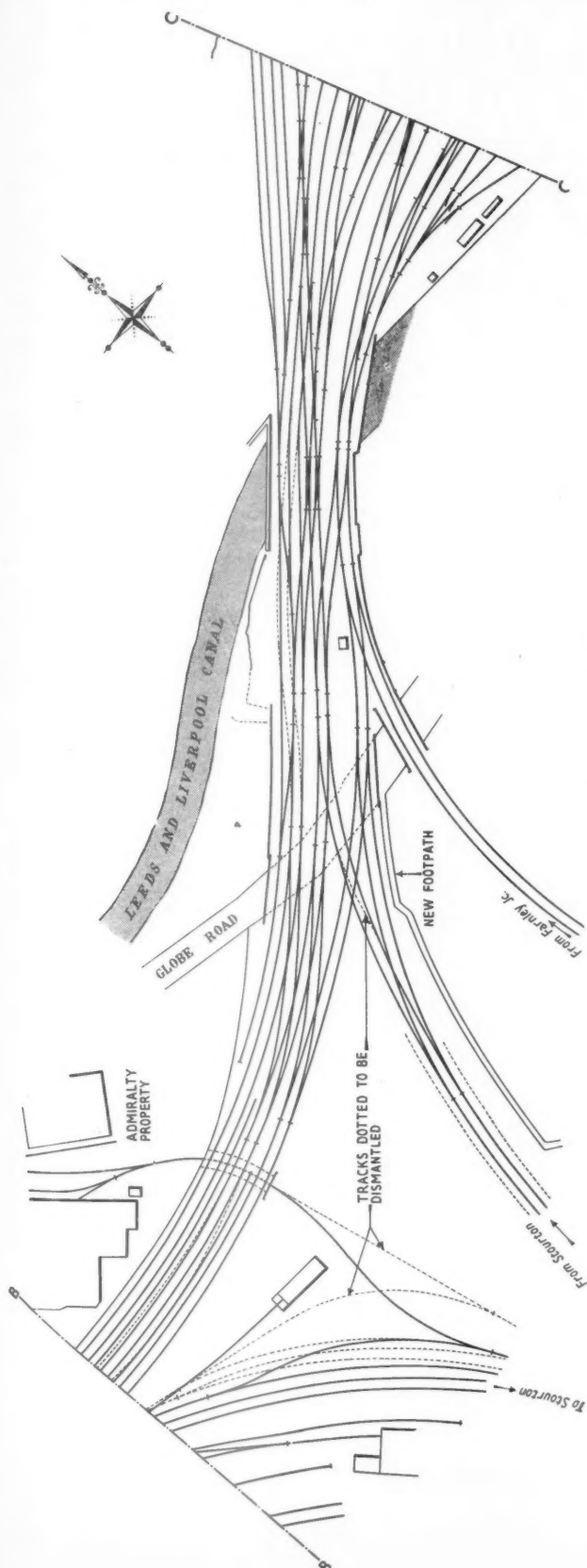
At present, passenger and goods traffic intermingle, a factor which complicates operation. The new scheme incorporates an enlarged and modernised parcels depot with overhead barrow ways to



*Diagrammatic representation of whole scheme*



Detailed diagram of modernisation scheme—1



Detailed diagram of modernisation scheme—2

platforms. These will divert movement of parcels and mails from passenger circulating areas.

Amenities such as booking offices, refreshment rooms, and waiting-halls will be completely redesigned and new facilities introduced for the convenience of the travelling public. A new south concourse will connect the existing concourse at City Station North.

#### Very Long Platforms

Between them, the two stations now have 16 platforms. The new number will be 13, which will include two new, additional, through platforms. Although overall footage will be less—12,600 against the present figure of 14,000—individual platforms will outlength those existing and, in some cases, will be the practical equivalent of two platforms in one. This, together with the ease of reversing diesel units, will make for faster, more efficient, operation. As traffic increases, more platforms can be added.

The new layout has been planned on a through basis and with future developments in mind. All motive power will be concentrated, and roofs kept high to accommodate overhead lines on the advent of electrification.

#### C.T.C. Over Surrounding Area

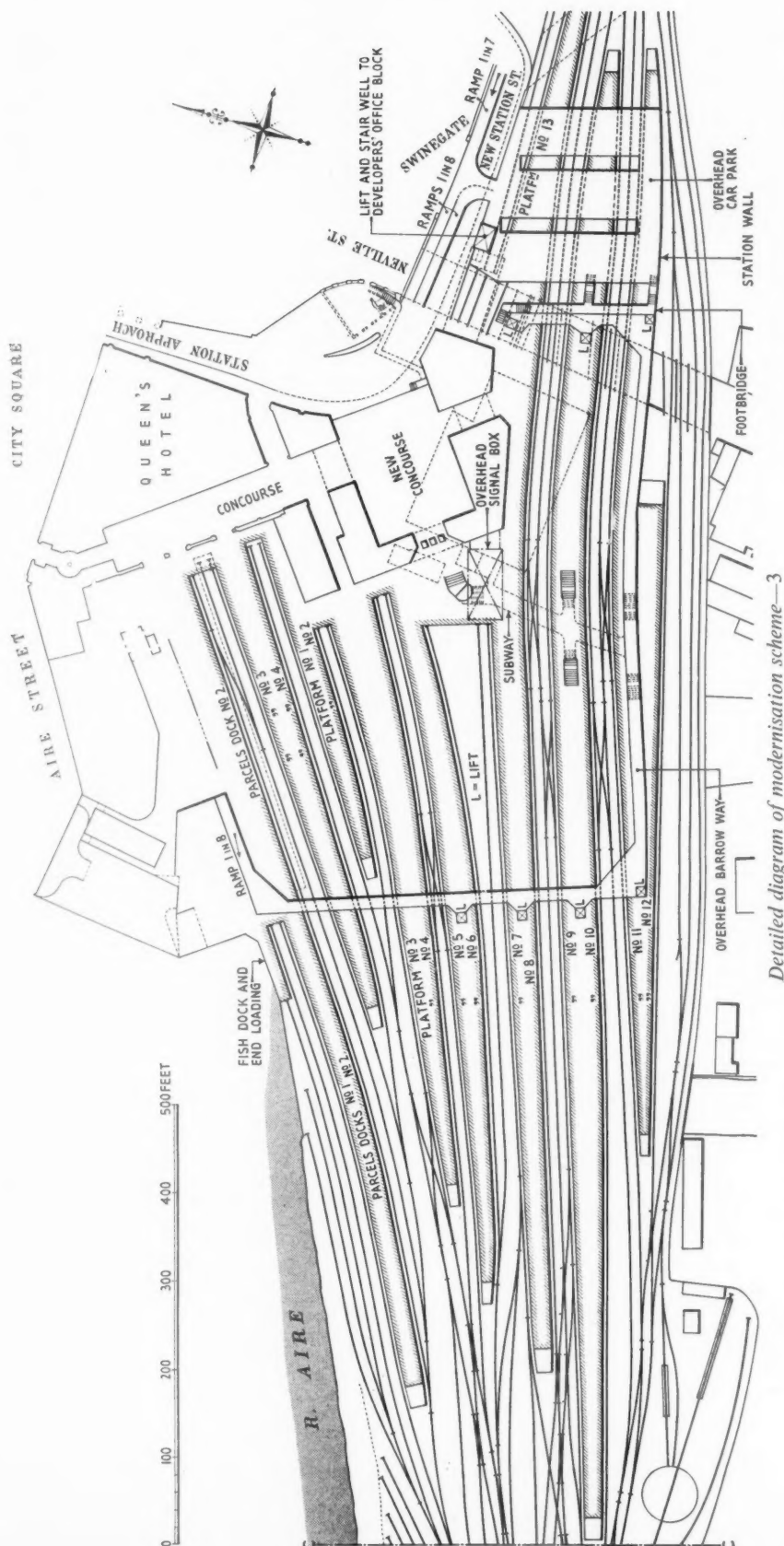
Signal and telecommunication work will include the installation of colour-light signalling and a new central power-operated signal box to control train operation over the whole of the surrounding area. Telecommunications will be improved and will include a new automatic telephone exchange.

Central Station will be closed. A "fly-over" approach line will bring trains in from the existing Doncaster and Bradford—Leeds Central lines direct to the west end of City Station. The "fly-over" will cross the existing line (formerly belonging to the Midland Company) near Whitehall Road. The layout of the lines approaching City Station from the West will be remodelled, and new lines will connect the former Midland and London & North Western approaches.

#### Parking Facilities

Changing social conditions, including the increased ownership of motor-cars and other forms of private transport, are producing a new railway attitude toward parking facilities in station yards. This is reflected in the ambitious plans for parking incorporated in the Leeds scheme. A deck will accommodate 180 cars. This will be extensible upward by additional floors and downward in a tram depot, now only partly in use. In- and out-going traffic to and from this deck will be controlled constructionally and by traffic regulation worked out in close conjunction with the City authorities. A series of one-way road routes in the vicinity of the new station has been planned. This system has been successfully tested with a volume of traffic equivalent to that expected on an average in the environs of the new station.

Good facilities for cleaning the extensive expanses of glass and concrete will be



incorporated. Provision will be made for hanging gantries on all top floors and top windows will open outward. The current railway practice of piping water down the lengths of platforms will be followed and augmented.

#### Improvements Summarised

Work on the project will commence with the fly-over and continue progressively across the area to be improved. Because the railway owns much surrounding property, the scheme can be expanded as occasion requires and it is unlikely that future managements will suffer from the "boxing-in" which has made alterations so difficult in the past.

Summarised, the benefits expected to accrue from the project are as follows:

- (i) Improved services;
- (ii) Concentration of services;
- (iii) Elimination of the necessity of changing from one station to another (a long-standing passenger grievance);
- (iv) Modernisation of amenities;
- (v) Greater freedom of movement and range of vision;
- (vi) Adequate car parking facilities;
- (vii) Improvement of general traffic flow within the city.

#### Cost

The estimated cost of reconstructing and modernising one combined station (£4½ million) is little greater than that of modernising the two separate stations. Additional revenue may be expected if present plans are carried through for the development for letting of a large office block round the new south concourse.

Tenders have already been called for and work is expected to begin very shortly. The whole project is planned for completion in about four years. During the early stages, temporary accommodation will minimise inconvenience to passengers, and the public will be kept informed of progress. A model of the new station will be on exhibition.

It is estimated that manpower economies resulting from combination of the two stations will be in the region of 300. Absorption of this redundancy figure has already been planned through normal wastage.



## Mount Royal Tunnel Reconstruction, C.N.R.

*Freezing layer of soft silt before excavation to install double crossover*

**T**HE three-mile railway tunnel under Mount Royal in the centre of Montreal was built by the Canadian Northern Railway and opened for service in October, 1918. At the north end it was connected with the Canadian Northern main line to Ottawa, and beyond to Vancouver. The Canadian Northern was taken over by the Canadian National Railways in December, 1918. The tunnel is now used by thousands of commuters daily, and long-distance trains pass through it to and from the Laurentian Mountains and north-eastern Quebec.

It is a double-track bore driven through limestone except for sections at each end where it breaks out into the over-burden. For most of its length, the tunnel wall is bare rock, but for 1,600 ft. at the south end and 300 ft. at the north end, there is a double concrete arch with a strongly reinforced centre wall.

The purpose of the reconstruction work now going on at the south end of the tunnel is to remove 144 lineal ft. of this centre supporting wall, and replace the existing double arch with a roof structure having no centre support. This will permit some necessary alterations to the track just inside the tunnel mouth.

For some time the C.N.R. has been planning to install a double crossover inside the tunnel mouth, permitting greater flexibility in Central Station track utilisation. At the present time, there are crossovers located 1,600 ft. inside the tunnel, but this distance precludes their use for quick switching moves. Also, trains northbound out of the station from any one of platforms 5 to 10 have to run for a distance of 1,600 ft. into the tunnel on the south-bound track before they can cross over on to the northbound track.

The fact that the crossovers are at present located 1,600 ft. inside the tunnel has been a matter of inconvenience which has been getting worse with the increase in the number of commuter trains. The work of altering the tunnel to remove this inconvenience has been deferred for some years. However, the construction of the Place Ville Marie Project necessitates the re-arrangement of the underlying railway tracks, and this in turn has made it necessary to proceed at once with the alterations to the tunnel.

### Condition of Soil

There are several complications involved in this construction. Train service in the tunnel has to be maintained without interruption. The tunnel underlies a city street with its complement of sewer, water and gas pipes, and conduits. The buildings on both sides of the street are on foundations that do not go down to rock. Of the 25 ft. depth of material overlying the rock, the lower 8 ft. is hard and the top 8 ft. is fair, but the intervening 9 ft. is a very fine silt with water content so high that soil tests made prior to the start of the work indicated

this layer of material had little or no stability.

The proportion of the work located under Cathcart Street was done in open cut. All the pipe services were removed or diverted except one 5-ft. 6-in. dia. sewer which was suspended across the open cut on two steel trusses. After removal of the overburden, the old tunnel roof was removed from track level, working at night. The old side walls were built up and the new roof constructed of precast prestressed concrete beams placed from the top.

### Freezing Operation

For the portion of the work located under McGill College Avenue, the excavation through the layer of soft silt created a definite hazard as this excavation had to be done very close to, and extended well below the bottoms of, the foundations of the buildings on both sides of the street. Various schemes for doing this were considered and eventually it was decided to freeze this layer of water-saturated silt and excavate for the new roof by tunnelling from one end. The excavation was done above the roof of the old tunnel and it was found that the roof of the excavation was solid and self-supporting as long as it stayed frozen. Immediately following excavation, the roof was shored with steel,

following which a new single arch reinforced concrete roof was constructed over the top of the old tunnel roof.

The volume of unstable soil that required solidification was about 75 ft. long, 40 ft. wide, and 9 ft. deep. The actual freezing action went beyond all three of these dimensions. The freezing was done by refrigerated brine solution circulated through steel pipes driven vertically into and through the unstable soil at approximately 4 ft. centres. The brine was refrigerated to a temperature of about  $-10^{\circ}$  F. in a heat exchanger. The primary refrigerant consisted of "Freon" which was compressed and circulated through the heat exchanger by two 75-ton electrically-driven compressors. The compressors were controlled automatically and ran continuously throughout the progress of the work; about five months.

### Removal of Centre Wall

The original tunnel roof consisted of precast concrete blocks set in place to form an arch over each track, with a wall in the centre between the two tracks. This structure was removed after the construction of the overlying new tunnel roof. The tracks were planked and then covered with secondhand timbers, after which about five lineal ft. of tunnel roof was shot down per night.



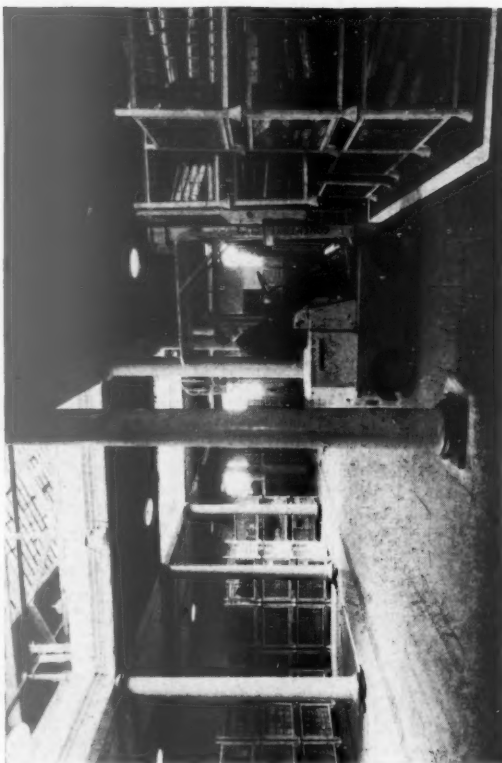
*Steel pipes driven into the ground carrying refrigerated brine solution to freeze unstable soil*

# Modernised Stores Organisation at Gateshead, North Eastern Region British Railways

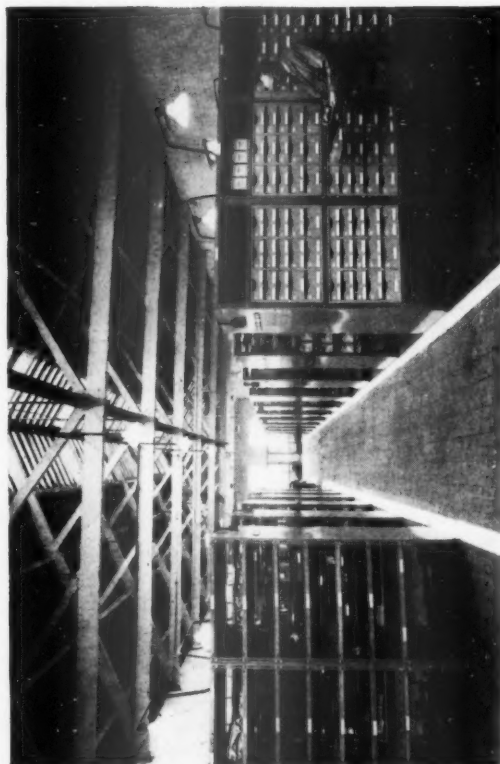
(See editorial reference this week page 66)



*Interior of general office*



*Fork-lift truck handling pallets on first floor*



*New slotted-angle racking*



*Bay storage on top floor*

## ELECTRIC RAILWAY TRACTION SECTION

### Objectives in Traction Design

**I**N the 50-cycle traction equipments now running on British Railways or in course of manufacture, it is possible to see the general pattern of development for the future. As far as multiple-unit stock is concerned, the problem of accommodating additional apparatus and auxiliaries has been met by dividing the traction installation between two adjacent vehicles. This involves no departure from current d.c. practice, since the principle of a motor coach permanently associated with a driving trailer was accepted in the 1,500-V. d.c. stock introduced on the Liverpool Street to Southend Victoria service of the Eastern Region in 1957 and will be continued when these sets are converted for a.c. operation. The idea has more to commend it than convenience in accommodating equipment. It means that the outer bogies of a train are not motored and may therefore deal less severely with the track at high speeds if axle-hung motors continue to be used. While spring drives have been ordered for electric locomotives with top speeds of 90 m.p.h. and 100 m.p.h., it may be noted that recent repeat orders for diesel-electric motive power have specified a 90 m.p.h. maximum for designs in which the motors are axle-hung, and it would therefore appear that there is no intention yet of standardising fully-springborne motor suspension for all vehicles required to operate at speeds above 75 m.p.h. Possibly the choice of formation in the Southend sets, with non-driving motor coaches coupled to driving trailers, was made with a view to subsequent conversion to a.c. and to the ultimate working of fast inter-city services with multiple-unit stock.

Both examples of 50-cycle multiple-unit stock running on British Railways at present, the Lancaster-Morecambe-Heysham of the London Midland, and the Colchester-Clacton-Walton (future Fenchurch Street-Southend) sets of the Eastern Region have series-parallel connection of the traction motors. This method is used occasionally in locomotives where the highest possible adhesion factor is not required (or in single-motor bogie designs where the axles are coupled by gearing) and has particular advantages for motor coaches, enabling four rectifiers to be used for a four-motor equipment instead of eight, as in most four-motor locomotives. Although rectifiers rated at twice the voltage necessary in a full-parallel system are needed, the current rating is halved, and in general the rated power output of mercury-arc rectifiers increases with voltage. The series connection also reduces the total direct current and the number of reverser contacts and field-weakening switches. Similar anti-slipping properties to a full-parallel circuit may be obtained by an equalising connection between the mid-points of the two motor circuits. On the occurrence of slipping, the transfer of voltage through this connection tends to reduce the voltage rise on the motor affected and hence also its increase in speed. Equalising connections are used in both the equipments referred to above.

Savings in switchgear are a natural objective of designers concerned with planning equipment for the restricted space of a motor coach, and economies can be achieved in the number of notching contactors by using the same switches twice in the process of acceleration. This may be accomplished by low-voltage and high-voltage grouping of a two-section secondary circuit, which is the method adopted in the Colchester-Clacton-Walton trains.

As in the diesel programme, many contractors are concerned in the manufacture of 50-cycle equipment and considerable variety in detail may be expected. This is due in part to the urgency of the electrification programme and the need in the first place to accept designs already available when orders were placed. A certain number of multi-anode rectifiers will be seen, therefore, and there will be different approaches to methods of pre-heating. Whether this is effected by warming the air flow, or by operating rectifiers on short-circuit, the general directive has been followed of providing a system which in the coldest weather will raise rectifiers to a suitable operating temperature during the time required for normal preparation of a train for service. It appears, also, that locomotive control

equipment will conform in general to a camshaft design with "run-up," "hold," and "run back" facilities similar to those of the d.c. equipments for the Southern Region motor-generator locomotives described in our February 13 issue. Intellegibility of instruments is also likely to be studied, and it has been proposed that the camshaft repeater dial in the cab should show the percentage of full voltage applied to the motors at any moment rather than the number of the notch in use. While these may appear to be matters of detail rather than fundamental development, it has been a wise policy to concentrate in the first place on the production by all manufacturers of equipment that will be easy to maintain and operate and reasonably uniform in design.

### "Est-Paris" Electrification Progress

**W**ITH the recent inauguration of electric working from Metz to Lérrouville and Revigny, and from Conflans to Vandières, the electrified mileage of the Eastern Region of the French National Railways reached 594, all on the 25-kV. single phase, 50-cycle system. The latest additions account for 92 miles, of which 10 miles are four-track and eight miles three-track. They form the first of five stages in the "Est-Paris" scheme, which eventually will cover the main line from Paris to Nancy and Sarrebourg, connecting there with the existing electrification onwards to Strasbourg and Basle; and the connection from Lérrouville to Metz. This latter portion is intersected by the Conflans-Vandières line, which will later be electrified southwards to its junction near Nancy with the Paris-Sarrebourg direct route. Stage 2 of the scheme will electrify from Sarrebourg to Nancy, and Stage 3 will be the Nancy-Vandières connection mentioned above, together with the main line westwards to Lérrouville and the branch from Toul to Neufchâteau. The other two stages will extend respectively from Revigny to Chalons-sur-Marne, and from Chalons to Paris, together with the branch from Eprenay to Rheims.

Work already in progress on the provision of various clearances for Stage 2 in the Nancy area was the subject of an editorial note in our June 12 issue. Openings of the next four stages will take place at intervals over the period 1960-62. In the work just completed modifications have been required at 21 stations to accommodate the fixed equipment required for electrification, and at 34 bridges and tunnels clearances for the 25-kV. catenaries have had to be provided by raising the vaults or lowering the track.

Open-wire telecommunications circuits have been transferred completely to cable routes and four repeater stations have been built to improve communications on certain circuits. While it is sometimes argued that the modifications to existing telegraph, telephone and teleprinter facilities necessitated by 50-cycle electrification are onerous, this work also gives the opportunity for modernisation and the application of new methods and apparatus which otherwise might have been deferred. A modern telecommunications system is a valuable by-product of 50-cycle traction, for it is important that this essential tool of the commercial and operating departments should compare at least on equal terms with the corresponding facilities available to other industries. Signalling, also, has required extensive modification of track circuits, and here the S.N.C.F. is again using electronic systems to replace the previous d.c. track-circuiting. This is another direction in which reconsideration of conventional practice enforced by 50-cycle electrification is leading to important developments which might otherwise have been left unexplored. Recent publication of British patents taken out by Continental manufacturers for electronic track-circuiting systems of various kinds may be regarded as portents both of the demand for such methods which is likely to arise in different parts of the world, and of the competition which is likely to be faced in meeting it.



## New Services on L.T.E. Metropolitan Line

£9,000,000 modernisation scheme to increase service for stations beyond Harrow by 25 per cent

**L**ONDON Transport Executive has planned new services on the Metropolitan Line when the £9,000,000 programme of new rolling stock, track widening, and electrification is completed in mid-1962. The works, which have already started, consist of electrification of 10 miles of steam-operated Metropolitan Line track between Rickmansworth, Amersham, and Chesham; quadrupling of the seven miles between Harrow-on-the-Hill and Moor Park; and replacement of compartment stock by lightweight aluminium sets to serve stations to Amersham, Chesham, and Watford.

The new Metropolitan Line service and the British Railways service from Marylebone together will give a peak service of 20 trains an hr. beyond Harrow-on-the-Hill instead of the present 14-15 trains. All Metropolitan trains will be of eight-car length instead of the present six- and eight-car trains.

### Intensive Services

The combined volume of service, Metropolitan and British Railways, beyond Harrow will be increased by over 25 per cent in the heaviest hour of each peak with 9,800 seats compared with 7,800 at present. The service will be reorganised throughout on a regular-interval basis. Electrification, the removal of the Harrow-Moor Park bottleneck, the change between electric and steam locomotives at Rickmansworth, and the greater power of the new multiple-unit trains will enable running times to be reduced and better punctuality to be

maintained. Running time to many stations beyond Harrow will be cut.

The peak service, with the stops beyond Baker Street, will be made up as follows, each group of trains running at regular quarter-hr. periods:

**Amersham fast**, stopping at Finchley Road, Moor Park and stations beyond, with connecting trains to Chesham (two trains per hr.), and **Chesham fast**, stopping at Finchley Road, Moor Park and stations beyond (two trains per hr.), giving a combined Amersham-Chesham service of four through trains per hr., all starting from Liverpool Street;

**Amersham local**, stopping at Finchley Road, Wembley Park and stations beyond (starting from Baker Street): four trains per hr.;

**Watford semi-fast**, stopping at Finchley Road, North Harrow and stations beyond (starting from Aldgate): four trains per hr.;

**Watford local**, stopping at Finchley Road, Wembley Park and stations beyond (starting from Baker Street): four trains per hr.;

**British Railways** trains from Marylebone, stopping at Harrow-on-the-Hill, Chalfont, Amersham and stations to Aylesbury: four trains per hr.

The traffic beyond Amersham will be provided for entirely by British Railways services increased in frequency and accelerated.

The following are details of the average service intervals which will be provided at the various groups of stations to and

from London:

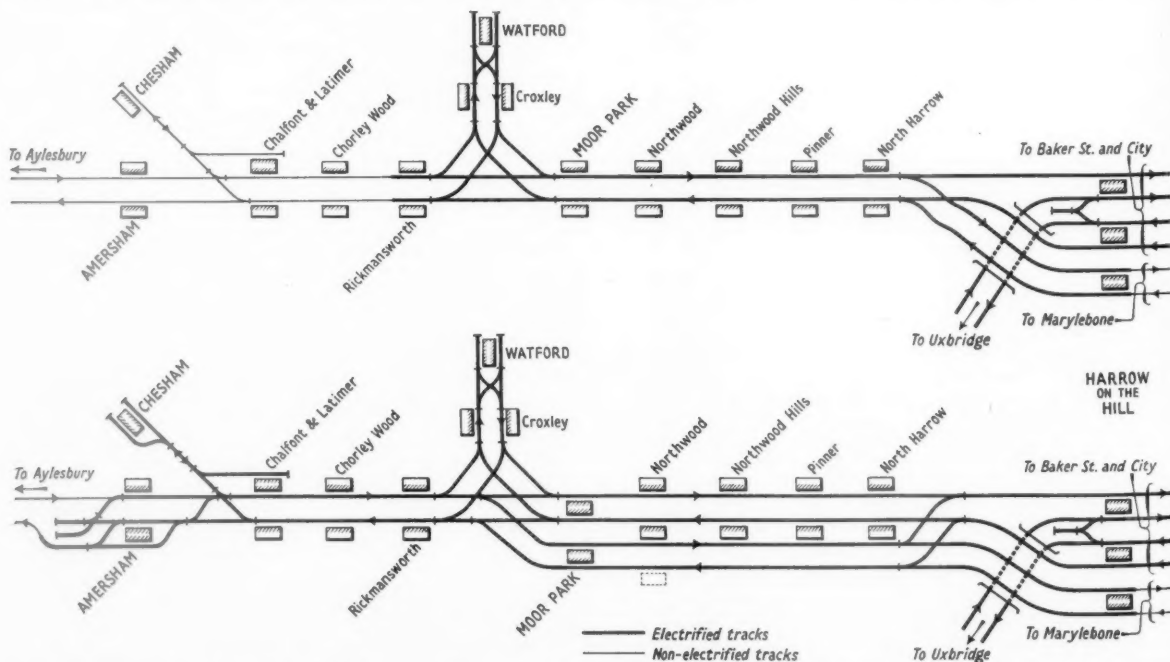
**North Harrow, Pinner, Northwood Hills, Northwood:** Five min. average service will be made up of 12 Metropolitan Line trains per hr.; four Watford semi-fast, four Watford local, four Amersham local, instead of the present eight London Transport trains (four semi-fast, four local), and occasional British Railways trains.

**Moor Park:** The service will be made up of 16 Metropolitan trains per hr.: four Amersham or Chesham fast, four Watford semi-fast, four Watford local and four Amersham local; compared with present total of 12. Fast trains will be accelerated. Easy London Transport-British Railways interchange at Harrow.

**Rickmansworth and Chorley Wood:** Seven-and-a-half min. service will comprise eight Metropolitan trains per hr. (four Amersham/Chesham fast, four Amersham local) in place of the present combined service of six (occasionally seven) Metropolitan and British Railways trains. There will be a substantial cut in journey time from London especially at Chorley Wood, and easy interchange between L.T.E. and B.R. at Harrow.

**Watford and Croxley:** The present service of eight trains per hr. to Watford and Croxley is adequate and will remain substantially unchanged.

**Chalfont and Latimer:** Five min. service of 12 trains per hr. will be made up of four Amersham/Chesham fast, four Amersham local and four British Rail-



Existing and altered track layouts between Harrow-on-the-Hill and Amersham, showing lines in course of electrification



ways fast trains, instead of the present six trains. All the fast trains will be accelerated and there will be easy interchange at the station between Metropolitan Line and British Railways trains.

**Amersham:** Six-min. service will comprise two fast and four local Metropolitan trains and four fast British Railways trains (total 10) instead of the present four trains. All fast trains will be speeded up and there will be quick interchange with British Railways trains to and from Aylesbury.

**Chesham:** 15-min. service of four trains per hr. will comprise two fast through trains and two Chalfont shuttle trains an hr. compared with the present three trains. The through service will be speeded up and shuttle trains will connect with the fast Amersham and British Railways Aylesbury trains at Chalfont.

On the inner section of the Metropolitan Line between Harrow and London, travellers will benefit from improved regularity beyond Harrow and better distribution of passengers over the services and by the increase of the British Railways service between Harrow and Marylebone.

At those off-peak periods there will be, besides the Watford trains, two semi-

fast Metropolitan Amersham trains and one through British Railways Aylesbury train per hr. in each direction. Electric shuttle trains to and from Chesham will connect with the Amersham and British Railways Marylebone services at Chalfont.

A leaflet issued by L.T.E. to passengers using the line explains the Metropolitan Line modernisation project and warns them that there may be some slow-up of the service during the major track and engineering works, arising from safety speed restrictions and special temporary timetables.

#### Amersham Electrification

Work on conversion from Rickmansworth to Amersham and Chesham is in progress. Current rails and electrical cables are being laid, new signalling is being installed, electrical substations are being built, and the remodelling of Amersham station is in progress.

The duplicate pair of tracks alongside the present ones from north of Harrow-on-the-Hill to north of Moor Park will be carried out between the current year and 1962. The new tracks will be mainly on the western side of the line, except at Northwood, where they will be on the east side. The work includes widening

or rebuilding 16 bridges and major track works throughout the line.

#### New Rolling Stock

The contract placed with Cravens Limited for 248 new cars to form 31 eight-car trains, to be delivered in stages beginning at the end of next year, was recorded in our March 6 issue. The cars will be of the saloon type with all seats at right-angles to the central gangway. Car bodies will be of lightweight unpainted aluminium with power-operated sliding doors.

The seating capacity will be greater than that of saloon cars elsewhere on the L.T.E. Underground system. They will have fewer seats per car than the old compartment stock, but this will be outweighed by the replacement of six-car trains by eight-car trains, by the augmented service frequency, and by the better distribution of passengers between short- and long-distance trains. In addition, the new electric trains will have a much improved standing capacity, and this will be particularly valuable for improving travel conditions for passengers in the rush-hour, on the in-town section, between Aldgate, Liverpool Street, Baker Street and Finchley Road.

## Car Washing Plant at Upminster Depot L.T.E.

*Horizontal flails for flared car bodies: eight-car train washed in 2 min. on way into depot*

THE second of the two new train-washing machines at the London Transport railway rolling stock depot at Upminster, District Line, was brought into use recently. The two machines are of a new type designed by L.T.E. engineers, and incorporate horizontal besides the usual vertical felt flails. The depot was brought into partial use, for operating purposes only, in December, 1958.

Washing machines at L.T.E. depots are usually within the depot itself, and trains require several shunting movements to enable them to reach and pass through the washing plant and return to a stabling road. At Upminster, the machines straddle two of the three parallel roads leading from Upminster Station into the depot, so that trains pass through them on their way into the fan of sidings and no special shunting movements are necessary. As the same roads are used by trains leaving the sidings to go into service, provision has been made for retracting the flails clear of the track to give trains a clear passage when proceeding towards Upminster Station.

#### Control Cabin

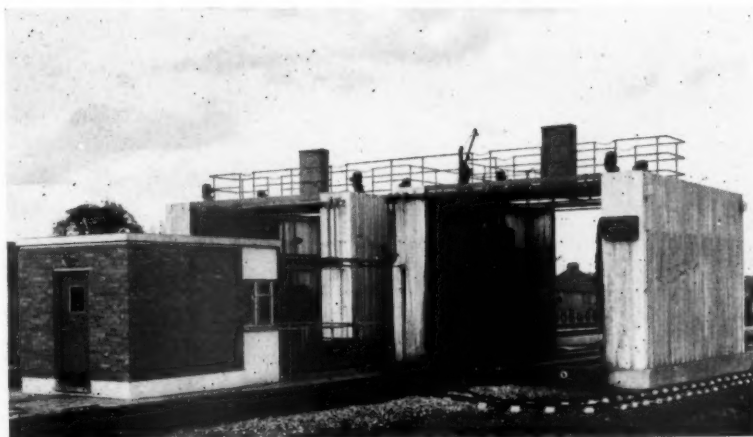
The two machines at Upminster lie side-by-side, with a single control cabin manned by an attendant. The cabin contains the controls for the pumps used to circulate the washing water and also the switches for the electric motors

which drive the flails.

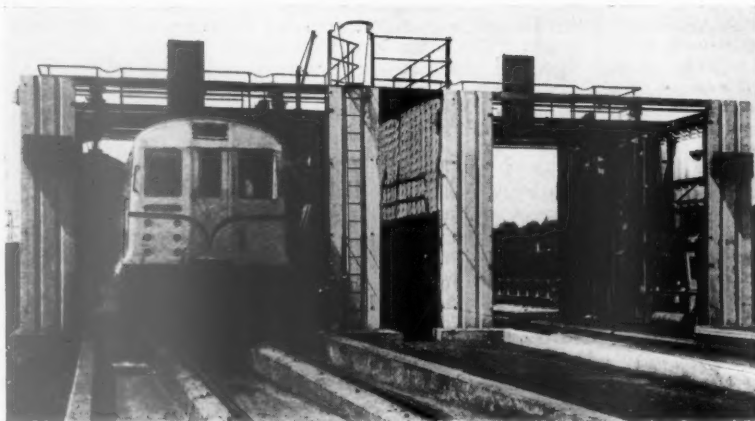
The machines are identical, each containing four vertical flails, two on each side of the track, also one horizontal flail, parallel to the track, on each side. The flails are made up of spindles fitted with rubber blades to which are clipped, by one end, strips of felt 27½ in. long and 4 in. wide. The strips hang loosely when the machines are not running but are opened out by centrifugal force when the spindles are turning. A spray of water, with detergent added, is directed on to

the felt strips when running. This water runs down to sumps between and on each side of the rails, which run through the washer on concrete beams.

The vertical spindles are driven through reduction gears by 1½-h.p. electric motors mounted above the spindles and turn at 46 r.p.m. The horizontal spindles are driven similarly by 1½-h.p. motors mounted at their outer ends but run at 102 r.p.m. The vertical flails rotate so that the felt strips move in the opposite direction to the train at the point of



*Washing machines from approach side, showing control cabin*



*District Line train of flare-sided stock passing through machine. Note retractable vertical and horizontal flails on right*

impact, i.e. those on the right with reference to the direction of travel of the train turn anti-clockwise; those on the left, clockwise. The horizontal flails are arranged to give a downward sweep against the train sides.

#### Loudspeaker Warning

The crew of a train to be washed as it enters the depot is warned by a trackside loudspeaker that the train is to be made ready for washing. If he has not already done so, the guard then makes sure that all windows are closed. When called forward, the driver takes the train slowly through the washing machine. The train is washed first by the four vertically-

mounted flails and then by the horizontal flails. Final rinsing is carried out by clear water sprays from vertical perforated pipes at the exit to the washing enclosure.

Trains pass through the washing machine at 4 m.p.h. and an eight-car train can be washed in two min.

#### Horizontal Flails

The horizontal spindles with their felts are intended primarily to clean the flared "skirt" of the more recent stock in use on the line. They are mounted only 4 ft. 8 in. above rail level. When a train of older stock, fitted with footboards, is being washed, the vertical spindles only are used and the horizontal ones are

retracted against the walls of the enclosure.

Once the train has passed through, the attendant stops the pumps and motors. The spindles, which are mounted on 3 ft. 3 in. arms, then automatically retract through an arc until they lie against the walls. The spindles are moved to the operating position and retracted by  $\frac{1}{2}$ -h.p. electric motors, one on each side of the washing machine. These motors drive through reduction gearing and a link mechanism.

Illuminated signs mounted on the ends of the enclosures show staff whether or not the machine is operating by displaying the words "washing" or "clear."

The sump is cleared by the attendant twice a week and the felt strips are watched for wear, and changed as required by the same man. The normal life of the strips is about four months, after which they have worn down about 3 in.

The washing machine enclosures are metal-framed and asbestos clad. The machines were designed to the requirements of Mr. A. W. Manser, Chief Mechanical Engineer (Railways), by Mr. E. G. Brunker, Plant Engineer, and were erected for test purposes in Acton Works before being taken to Upminster.

Principal contractors were: Pumps, Gwynnes Pumps Limited; valves, Saunders Valve Co. Ltd.; motor reduction unit (for spindles), Opperman Gears Limited; automatic control panels, Airedale Electrical & Mfg. Co. Ltd.; linkage mechanism, Silentbloc Limited; asbestos cladding, Universal Asbestos Co. Ltd.

## Electric Haulage in South Africa



*The Blue Train, hauled by "3E" class locomotive near Johannesburg, South African Railways*

## RAILWAY NEWS SECTION

## PERSONAL

Mr. Michael Moohan, New Zealand Minister of Railways, will visit the United Kingdom, September 6-20 after a visit to Warsaw, as a delegate to the Conference of the International Parliamentary Union. In the U.K. he will study railway innovations. It is understood that he will also discuss the order of a rail-ferry for service between Wellington and the South Island. Page 616 of our May 29 issue refers.

Superintendent, Stratford, in December, 1947, which position was redesignated District Motive Power Superintendent, in November, 1948. He remained at Stratford until November, 1955, when he was appointed Assistant Motive Power Superintendent, Eastern Region, and, in November, 1957, Motive Power Officer in the office of the Line Traffic Manager (Great Eastern). He was awarded the M.B.E. in 1956. Reference to Mr. Miller's new appointment is made elsewhere in this issue.

The following changes in the Argentine Government have recently taken place:—

Mr. A. R. Costantini, Secretary of Transport has been appointed Minister of Public Works & Services.

Mr. V. S. Mangonnet, Under Secretary of Transport, becomes Under Secretary, Ministry of Public Works & Services.

Dr. M. F. Castello has been appointed Secretary of Transport.

Mr. B. Loitegui has been appointed Under Secretary of Transport.



*Mr. T. C. B. Miller*

Appointed Chief Mechanical & Electrical Engineer, Eastern Region, British Railways



*Mr. E. D. Trask*

Appointed Assistant to General Manager (Special Duties), Eastern Region, British Railways

Mr. T. C. B. Miller, M.B.E., M.I.Mech.E., M.I. Loco. E., Motive Power Officer in the office of the Line Traffic Manager (Great Eastern), has been appointed to the newly-created position of Chief Mechanical & Electrical Engineer, Eastern Region. Mr. Miller was educated at Fulneck Boys' School and entered railway service, in 1929, as a Premium Apprentice at Doncaster Locomotive Works. He was appointed Supernumerary Foreman at Queen Street, Glasgow, in 1932, and held subsequent positions at Helensburgh and Glasgow until his appointment as Assistant to the District Locomotive Superintendent, Burntisland, in 1939. Mr. Miller was transferred to Haymarket, as Locomotive Shed Foreman in 1941. In 1942, he moved to the war-time Headquarters of the Locomotive Running Superintendent (Eastern Section), Southern Area, L.N.E.R., at Shenfield, as Technical Assistant. In 1943, he became Assistant District Locomotive Superintendent, Ardsley, and in 1944 was appointed Assistant District Locomotive Superintendent, Cambridge. Mr. Miller was appointed District Locomotive

Mr. T. A. Crowe, Chairman & Chief Managing Director, North British Locomotive Co. Ltd., has retired from the board for personal reasons, and Mr. Tom Coughtrie has been appointed Chairman of the company. Lord Reith joined the board last week, and has been appointed Vice-Chairman.

Mr. W. R. Moffat, Co-ordinator of Data Processing, Canadian National Railways, has been appointed Assistant Chief of Transportation.

Mr. R. B. Lal, Chief Operating Superintendent, Central Railway of India, has been appointed General Manager. He succeeds Mr. B. Arora, who is on retirement leave.

Mr. K. B. Mathur, Member, Transportation, Railway Board of India, has been appointed Chairman of the Railway Board. He succeeds Mr. P. C. Mukerjee who is on retirement leave. Mr. Mathur has recently completed a business tour to Europe, including the U.K.

Mr. E. D. Trask, M.I.Mech.E., M.I.Loco.E., Motive Power Superintendent, Eastern Region, British Railways, has been appointed to the newly-created position of Assistant to the General Manager (Special Duties). Mr. Trask entered the Doncaster Works, Great Northern Railway, under the late Sir Nigel Gresley, in 1911. During the 1914-18 war he was commissioned in the Royal Field Artillery, and subsequently in the Royal Flying Corps and Royal Air Force. He rejoined the Great Northern Railway at Ardsley (Leeds) and was subsequently transferred to Kings Cross. In 1923 he was appointed Assistant District Locomotive Superintendent, Neasden, London & North Eastern Railway, and three years later became a technical assistant to the Locomotive Running Superintendent, Southern Area, L.N.E.R. After service at Grantham and Peterborough, Mr. Trask was appointed District Locomotive Running Superintendent, at Gateshead, in 1934, and of the combined districts of York & Leeds in 1937. In 1938 he became Locomotive Running Superintendent, Scottish Area, and



retained that position until the nationalisation of the railways. He was appointed Motive Power Superintendent, Scottish Region, in January, 1951, and in February, 1954, he became Motive Power Superintendent Eastern Region, the position he now relinquishes. During the 1939-45 war, Mr. Trask was closely connected with the Home Guard and commanded the 10th Battalion, Royal Scots (H.G.). He is President of the Locomotive & Carriage Institution of Great Britain & Eire. Editorial reference this week.

Mr. Percy Stephenson, Regional Establishment & Staff Officer, North Eastern

Maj.-General S. Z. Towfiq has relinquished his position as Director-General, Iraq State Railways. He is succeeded by Mr. M. A. Reza.

Mr. O. G. Götzsche, Chief Signal Engineer, Danish State Railways, has retired. He will be succeeded by Mr. W. Hansen, Deputy Chief Signal Engineer.

Mr. Pena Tain, Technical Advisor on Railroad Matters, Ministry of Public Works, Argentina, has recently visited factories of French rolling stock manufacturers, and installations on the French National Railways.

Mr. S. E. Raymond, Chief Commercial Manager, Scottish Region, British Railways, who, as recently recorded, has been appointed Assistant General Manager (Traffic), began his career in the Civil Service. In 1946, he joined the London Passenger Transport Board and, after holding important appointments in staff management and administration with London Transport and British Road Services, was appointed, in 1955, to the Headquarters of the British Transport Commission, as Assistant Manpower Adviser. He was a Member of the Board of Management of Pickfords from 1951 to 1955. In 1956 he became Director of Establishment &



*The late Mr. P. Stephenson*  
Regional Establishment & Staff Officer,  
North Eastern Region, 1957-59



*Mr. S. E. Raymond*  
Appointed Assistant General Manager (Traffic),  
Scottish Region

Region, British Railways, who, as recorded in our August 21 issue, died on August 12 at the age of 53, joined the former North Eastern Railway at Hull in 1922. In 1938 Mr. Stephenson moved to York, in the Staff Section, Divisional General Manager's Office, London & North Eastern Railway. Subsequently he served as Staff Assistant to the Operating Superintendent, the Locomotive Running Superintendent and, later, to the Passenger Manager, Edinburgh, Scottish Area. In 1946 he was appointed Staff Assistant to the Operating Superintendent, Southern Area, Liverpool Street, and was a member of many of the staff negotiating bodies, including L.N.E.R. Sectional Councils. Mr. Stephenson returned to York, in 1948, as Assistant in the Regional Staff Office and in 1951 was appointed Assistant Regional Staff Officer, becoming Regional Establishment & Staff Officer following the retirement of Mr. Collingwood Cooper in June 1957.

Mr. S. Vickerman, Assistant (Cartage) to Commercial Officer, at the London Midland Region, British Railways, has retired.

Mr. P. F. Shute, Deputy Assistant (Modernisation), Euston, London Midland Region, British Railways, has been appointed Divisional Signal Engineer, Manchester.

Mr. W. F. Beatty, District Engineer, Crewe, London Midland Region, British Railways, has been appointed New Works Officer, London.

Mr. A. L. Owen, District Engineer, Manchester, London Midland Region, British Railways, has been appointed New Works Officer, Manchester.

Mr. W. C. S. Greig, Stationmaster, Buchanan Street, Glasgow, Scottish Region, British Railways, has been appointed Stationmaster, Queen Street, Glasgow.

Captain P. C. E. Dove, Assistant to the Marine Superintendent, Shipping & Continental Department, Victoria, Southern Region, British Railways, has been appointed Marine Superintendent. He succeeds Captain G. F. Jefferies, who is retiring.

Staff, British Transport Commission, and, in 1957, was appointed Chief Commercial Manager. His new appointment is part of the reorganisation, described in our January 23 issue, of the Scottish Region. While the new organisation is being developed he will continue to exercise control over the Chief Commercial Manager's office, but will gradually take up his new duties as part of the General Management team. During the war, Mr. Raymond served in H.M. Forces overseas and was demobilised in 1946 with the rank of Lt.-Colonel.

Mr. E. Howell, Modernisation & General Assistant, Line Traffic Manager's Office, Great Northern, North Eastern Region, British Railways, has been appointed District Operating Superintendent, Kings Cross.

Mr. M. W. Davies, Chief Commercial Manager, Rhodesia Railways, has retired. He has been succeeded by Mr. Roy Allan, Assistant Chief Commercial Manager. Mr. K. MacDonald, Commercial Superintendent, succeeds Mr. Allen.





*The late Mr. E. W. Stewart*

Formerly Commercial Assistant to Continental Traffic Manager, L.N.E.R.



*The late Mr. F. A. Bottomley*

Formerly General Manager, Entre Rios Railways and Argentine North Eastern Railway



*Mr. J. H. P. Lloyd*

Locomotive Works Manager, Stratford Works, Eastern Region, 1943-59

Mr. E. W. Stewart, Commercial Assistant to the Continental Traffic Manager of the London & North Eastern Railway, and subsequently of the North Eastern Region, British Railways, 1946-49, whose death on June 23, at the age of 78, was briefly recorded in a recent issue, joined the Great Northern Railway in 1905, in the Chief Accountant's Office. Mr. Stewart was on active service from 1914 to 1919. In 1923 he went to the Chief Accountant's Office, L.N.E.R. From the accountancy side of the L.N.E.R. steamships undertaking, he gradually assumed a closer connection with the Continental traffic affairs, until, in 1928, he became Secretary, Humber Steamships Pooling Committee. In 1932 he was appointed Accountant, London-Hollyhead Steamship Pools. In 1934 Mr. Stewart moved to the Continental Department, as Chief of the Rates Section, and remained there until 1940, when the Continental services were suspended. From 1940 to 1945 he held a wartime appointment as Chief Accountant's Auditor, at the Funds Office, Peterborough. Mr. Stewart was appointed Commercial Assistant to the Continental Traffic Manager in 1946, and retired in 1949.

We regret to record the death in Wellington, New Zealand, at the age of 73, of Mr. Herbert H. Sterling, C.M.G., L.I.B., M.Inst.T., F.R.E.S., General Manager, New Zealand Government Railways, 1928-31, and Chairman of the New Zealand Government Railways Board, 1931-36. Mr. Sterling joined the railways as a cadet, in 1901, and while being trained in traffic working and general administration he studied law, later being called to the Bar. He was appointed Law Officer to the railways in 1919 and, five years later, was promoted to be Assistant General Manager. He became a member of the Railways Board of Management in December, 1924. Mr. Sterling resigned from the railways, in 1926, to become General Manager of the New Zealand Co-operative Dairy Company, but two years later he rejoined the Railways Department as General Manager. In 1931 he became Chairman of the Railways Board of Management. He retired in 1936. During the 1939-45 war, Mr. Sterling was liaison officer to the Minister of National Service.

Mr. R. S. Witchell has resigned from the board of E.N.V. Engineering Co. Ltd.

Mr. F. A. Bottomley, former General Manager of the Entre Rios Railways and of the Argentine North Eastern Railway, whose death was briefly recorded in a recent issue, entered the London Office of the Entre Rios Railways in 1904. In 1907 he was transferred to the General Manager's Office at Parana, Entre Rios, and subsequently served in various capacities in the Traffic and Accounts Departments. In 1910 he was appointed Chief of the Tariffs Office. In 1912, Mr. Bottomley was transferred to the local board of the Entre Rios Railways, the position he continued to hold until his appointment as Local Director & Legal Representative, Entre Rios and Argentine North Eastern Railways, in 1929. In 1920 he assumed charge, also, of the Local Secretaryship of the Argentine North Eastern Railway, as a result of the establishment of a joint administration of that company and the Entre Rios Railways. He became Deputy General Manager of both systems in 1946, and was promoted to be General Manager the following year. Mr. Bottomley was also Local Secretary of the Argentine Transandine Railway; a Local Director of the Buenos Ayres Town & Docks Tramways Limited; the Electric Tramways of La Plata; Vice-President of the Buenos Ayres Central Railway; a director of the Buenos Ayres Transport Corporation and of the Lacroze Tramway Co. Ltd.

Mr. J. P. Elliott, Secretary & Director of Davey Paxman & Co. Ltd., has been appointed Assistant Managing Director.

Mr. Charles Beastall, Assistant District Engineer, Derby, London Midland & Scottish Railway, 1941-45, whose death on June 6, at the age of 80, was briefly recorded in a recent issue, began his career, in 1892, in the Codnor Park Works of Butterley & Co. Ltd. He studied at Heanor Technical College, Ripley, and at Nottingham University, and qualified as a draughtsman. He joined the former Midland Railway, in the New Works Department, Derby, in 1903. In 1909 he was transferred to the Western Divisional Engineer's Office, Derby, and, in 1918, was appointed an assistant in the division. In 1922 he became Chief Bridge Assistant, and, was made District Engineer, Derby, in 1941, a position he held until his retirement in January 1945. Mr. Beastall frequently lectured on bridge construction.

Mr. J. H. P. Lloyd, M.I.Mech.E., M.I.Loco.E., Locomotive Works Manager, Stratford Works, Eastern Region, British Railways, has retired. Mr. Lloyd began his railway career on the Midland & Great Northern Railway, serving on the Manager's staff at Melton Constable until its closure, when he was appointed an Assistant to the Locomotive Works Manager, at Doncaster, and then at Gorton, Manchester. He was later appointed Assistant Locomotive Manager at Gorton, and subsequently Assistant Locomotive Works Manager, Doncaster. In 1943 he was appointed Locomotive Works Manager, Stratford Works, the appointment he now vacates. His work at Stratford recently has been concerned with the conversion scheme, described in our June 26-August 14 issue, for heavy overhauls of all Eastern Region main-line diesel locomotives. For some years Mr. Lloyd has been Chairman of the Sports Association which covered the area of the former Great Eastern Railway. He is a member of the Council of the Institute of Locomotive Engineers and serves on the Finance Committee.

Mr. W. O. Reynolds, Assistant Operating Officer, London Midland Region, British Railways, has been appointed Planning Officer on that region. He will organise the order of regional development relating to modernisation and electrification.

Mr. E. W. Rodger, Director & Secretary, British Wagon Co. Ltd., has been appointed Managing Director. He will succeed Mr. J. R. Cruickshank. Mr. C. F. Lawrence King and Mr. G. F. Williams will relinquish their executive positions as General Managers.

Mr. P. J. Conradie, Administrative Secretary to the Minister of Transport, South Africa, has been appointed System Manager, Windhoek, South African Railways. Mr. J. M. Oelofsen, Assistant Chief Superintendent (Staff), South African Railways, becomes Relieving System Manager.

Mr. R. I. H. Longman, at his own request, will relinquish membership of the Tilling Group Management board and certain chairmanships and directorships in the group companies on September 30. He will continue as Chairman & Managing Director of Wilts & Dorset Motor Services Limited.

Mr. Colin J. V. Gray has been appointed General Manager & Local Director, British Wagon Co. Ltd. Mr. B. J. Moriondo has been appointed Assistant General Manager and Local Director.

Mr. L. R. P. Pugh, Director & Secretary, Guest Keen Iron & Steel Co. Ltd., has been appointed Assistant Managing Director. He is succeeded as Secretary by Mr. C. F. Pagnamenta, Chief Accountant. Mr. B. W. John, Assistant Secretary, becomes Chief Accountant.

Mr. R. F. Newman has been appointed Managing Director of Transport Equipment (Thornycroft) Limited, and a Director of John I. Thornycroft & Co. Ltd. Lt.-Cmdr. J. W. Thornycroft, who was elected Deputy-Chairman of John I. Thornycroft & Co. Ltd., in September of last year, has relinquished the post of Managing Director of Transport Equipment (Thornycroft) Limited, but will continue to be Chairman of the board of that company. Captain G. Villar and Mr. L. L. Holt have retired from their executive positions and from the board of John I. Thornycroft & Co. Ltd. Mr. Ian Cameron has been appointed General Manager, and Mr. F. B. Crabtree, Commercial Manager of the company's Southampton works.

#### INSTITUTE OF TRANSPORT AWARDS

The Institute of Transport announces the following awards:—

##### *British Transport Commission Awards:—*

Mr. H. Osborn, Chief Accountant & Financial Adviser, British Transport Commission, for his paper "Transport costs."

Mr. C. E. Whitworth, General Assistant to the General Manager, Eastern Region, British Railways, for his paper "Some impacts of air and road transport on railway economics and practice."

Mr. F. R. L. F. Wentworth, Assistant Transport Controller, Schweppes Limited, for a meritorious performance in the Associate Membership Examination.

Mr. D. L. Knights, Clerk, Eastern Region, British Railways, for a meritorious performance in the Graduateship Examination.

##### *B.E.T. Road Passenger Transport Award:—*

Divided equally between:—  
Mr. J. L. Jones, Driver, London Transport, for his paper "Automatic fare collecting"; and

Mr. F. A. Mason, Chief Engineer, Western Welsh Omnibus Co. Ltd., for his paper "Productivity in the omnibus industry."

##### *Bristol & White-Smith Air Transport Awards:—*

Medal to Mr. J. W. Swann, Passenger Services Manager, British European Airways, for his paper "The expeditious movement of passengers and baggage before and after flight."

Prize to Mr. K. F. R. Rogers, Navigating Officer Instructor, British Overseas Airways Corporation, for a meritorious performance in the Associate Membership Examination.

##### *Dock & Harbour Authorities Association Studentship:—*

Mr. R. L. Oliver, Clerk, British Transport Docks, Hull.

##### *Institute Associate Membership Examination Prizes:—*

First place Mr. G. Jones, Air Traffic Control Officer, Ministry of Transport & Civil Aviation.

Second place Mr. N. J. D. Whittle (Graduate), Clerk, Central S.M.T. Co., Ltd.

##### *Institute Graduateship Examination Prizes:—*

First place Mr. J. P. Parslow (Student), Management Trainee, Unilever Ltd.

Second place Mr. N. D. G. Mackenzie (Student), Special Duties Clerk, Bourne-mouth Corporation Transport.

##### *"General Steam" Award:—*

Mr. J. R. Basham, Costing Clerk, Thames Steam Tug & Lighterage Co., Ltd.

The British Transport Commission announces that Mr. C. S. McLeod, Regional Establishment & Staff Officer, Eastern Region, British Railways, has been appointed Director of Industrial Relations in the Manpower Adviser's department at Commission headquarters. He succeeds Mr. C. H. Brazier who retired on July 31.

Mr. I. C. Forsyth, Works Manager, Crewe Locomotive Works, has been appointed Mechanical & Electrical Engineer (Workshops) in the Chief Mechanical & Electrical Engineer's Department, Derby, London Midland Region.

Mr. E. I. Boyd, Assistant District Traffic Superintendent (Commercial), Chester, has been appointed District Traffic Superintendent, Barrow-in-Furness, London Midland Region.

We regret to record the death of Dr. H. J. Nichols (64), formerly General Manager, Bombay, Baroda, & Central India Railway.

Mr. F. W. Baker, Principal Traffic Costing Officer, has been appointed Economic Survey Officer, London Midland Region.

Lord Weir of Eastwood, P.C., G.C.B., D.L., L.D., Hon. President of G. & J. Weir Limited, and Chairman, 1929-31, of the Committee on Railway Electrification, whose death was recorded in a recent issue, was 82. Lord Weir was educated at Glasgow High School and served his apprenticeship in the family engineering business, G. & J. Weir Limited, of which he was Managing Director when the 1914-18 war broke out. In 1915 he was appointed Director, Scottish Branch, Ministry of Munitions. In 1917 he became Controller of Aeronautical Supplies and a member of the Air Board, and, in 1918, he was made Director-General, Aircraft Production, Ministry of Munitions. He was knighted in 1917. From April to December, 1918, he was Secretary of State for the Royal Air Force, and President of the Air Council. In the same year a Peerage was conferred on him. Lord Weir was Chairman of the Government committee whose recommendations resulted in the setting up of the Central Electricity Board, and, in 1929-33, he was Chairman of the committee which considered the problems of main-line railway electrification. He was created G.C.B. in 1934, and, in 1935, took up advisory duties on air rearmament and Imperial defence. He was released from this work in 1938, and, a year later a viscountcy was conferred on him. He served as Director-General of

Explosives, 1939-41, and as Chairman of the Tank Board in 1942.

Brigadier M. H. Cox, Resident Director, Durgapur, Indian Steelworks Construction Co. Ltd., is resigning. He will be succeeded by Mr. D. J. Bell, General Manager, Durgapur Steel Project. Mr. Bell was formerly with Stewards & Lloyds Limited.

Mr. J. D. Millner, Manager, North London Branch, Ferodo Limited, has been appointed the company's Manager in the Irish Republic, with headquarters in Dublin. He will be succeeded, as Manager, North London, by Mr. W. H. Wyse, whose place as Sheffield Manager will be filled by Mr. A. Chatterton.

Mr. J. F. Herbert, a director of the English Electric Export & Trading Co. Ltd., has been appointed General Manager Export Sales. Mr. S. E. Bolton, Area Export Manager in North America, has been appointed Assistant General Manager Export Sales, and Mr. S. W. J. Butler, who has been in charge of the company's Overseas Factories Services since 1951, has been made Manager of a new Overseas Factories Department.

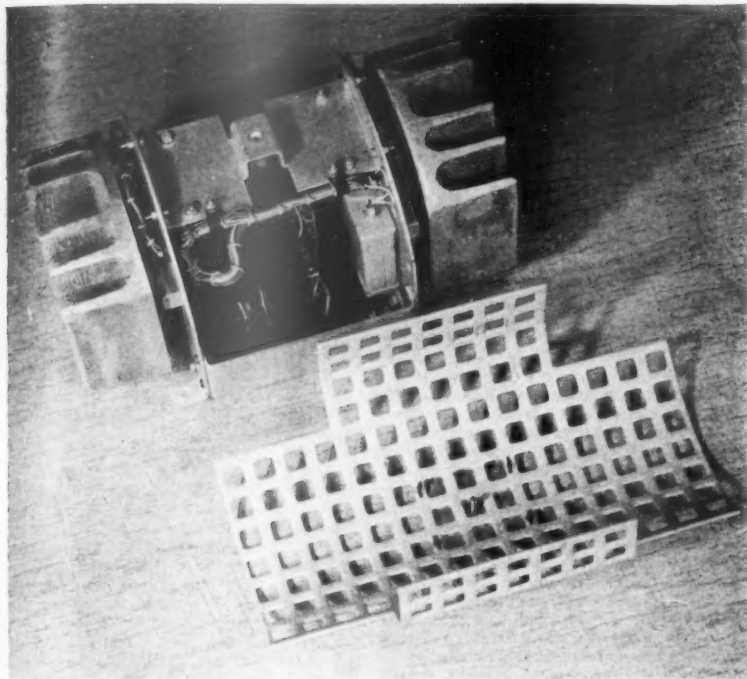
Viscount Falmouth has been re-elected President of the British Internal Combustion Engine Research Association, and the following have been re-elected Vice-Presidents: Sir Harold Roxbee Cox, Rear-Admiral W. F. B. Lane, Mr. H. N. Pemberton, Professor O. A. Saunders, Brigadier S. A. Stewart, Mr. J. G. Dawson and Mr. A. G. Howe have been elected to the Council in succession to Mr. G. B. R. Feilden and Mr. Lawrence Robson. Mr. V. H. F. Hopkins has been elected Chairman of Council and Mr. J. G. Dawson, Vice-Chairman.

Mr. C. T. Hutson, C.B.E., A.M.Inst.T., Chief Commercial Superintendent, East African Railways & Harbours, has retired. To mark the occasion, Mr. J. R. Farquharson, General Manager, E.A.R.&H., presented him with an oil painting of Lake Elmenteita, by the Kenya artist Mr. McClellan Sim. The picture on this page shows Mr. Hutson and some of the staff at Nairobi. All sections of the Commercial Staff and friends subscribed to the cost of the picture and to a cheque which was given to Mrs. Hutson. Mr. Hutson was made a Commander of the British Empire in the 1959 New Year Honours List, and his illustrated biography was published in our January 9 issue.



Mr. C. T. Hutson, retiring Chief Commercial Superintendent, E.A.R.&H., during the presentation by Mr. J. R. Farquharson. (See accompanying paragraph)

## NEW EQUIPMENT AND PROCESSES



### Transistor Inverter

THE transistor inverter illustrated on this page is designed for open-type railway saloon coaches. Units operating single 4-ft. 40W. or two 2-ft. 20W. tubes can be supplied.

Supply voltage range is 21V.-32V. d.c.; maximum continuous input voltage and maximum continuous ambient temperature are 32V. d.c. and 45 deg. C. respectively; minimum input voltage and minimum ambient temperature to start the tube are 21V. d.c. and -10 deg. C. respectively; operating frequency is 1,000 cycles; input current at 28V. d.c. is 2.3A. (average). Light output from tube is equivalent to that obtained at normal mains operation.

The manufacturer is contracting to supply 600 of these units to the London Midland Region of British Railways and 300 units to the Pullman Car Co. Ltd.

Further details can be obtained from the General Electric Co. Ltd., Magnet House, Kingsway, London, W.C.2.

### Automatic Temperature Control Valve

THE Serckstat automatic temperature control valve, used in conjunction with a Serck cooler, forms a compact self-contained unit which supplies coolant at a pre-determined temperature under all conditions without being affected by changes in cooling water temperature or flow. Its main features are as follow:—

Narrow control band width; negligible leakage; ease of installation; compact design; low weight; minimum friction of moving parts; reversible flow—bypass or mixing valve; suitability for water or oil; round flanges to B.S.S. Tables D and E.

When the engine is cold the valve remains closed to radiator, all coolant flow going

through the bypass. Shortly before the coolant reaches its design temperature, the valve opens to radiator, closing the bypass. Under working conditions the valve will permit a sufficient partial flow to fulfil cooling requirements and ensure temperature stability.

The actual force is provided by two temperature-sensitive elements, mounted in series to give maximum movement to the

valve mechanism. The coolant flow is directed to pass over these elements, which are filled with paraffin wax with a large coefficient of expansion. Thus, a rise in temperature of the cooling fluid above the pre-determined moving-off temperature of the element produces a rapid expansion of the wax. This is translated into linear movement of the valve spindle assembly.

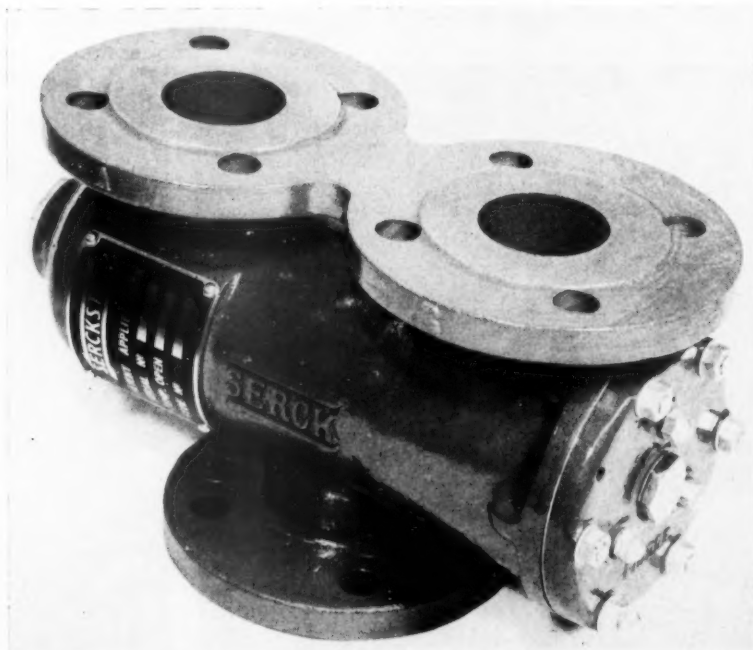
The valve mechanism is protected against overloads by an override spring. Lowering of coolant temperature results in contraction of the wax, and with it the mechanism is returned to its original position by a spring.

Further details can be obtained from the manufacturer, Serck Radiators Limited, Warwick Road, Birmingham.

### Improved Heat and Sound Insulation

FIBREGLASS Crown is a fine-fibre fabric free of shot or dust. There is no fall-out during production. It has good tensile strength for handling in roll form, and its inherent stability is fully resistant to shake-down from rail transport vibration. Sample testing by the makers includes a 2-in. drop every second continuously for a period of five days. It has been fully tested and approved by British Railways.

Because all coarse material has been eliminated, gloves are unnecessary for handling. There is full recovery to nominal thickness for compression—a factor resulting in considerable economies in the space required for storage and transport. Manufacture is continuous and automatic. Sand, limestone, and additives are melted together in a closed furnace heated by Town gas. The melt is run off through a platinum bushing orifice into a fast-rotating alloy-steel dish, the walls of which are multi-perforated with small holes. Centrifugal force extrudes the molten glass through these. Diameter of the fibres in flight is further







reduced to about 0.00024 in. by heating from a concentric ring of burners and by air blowers. The fibres are then directed into a collecting trough, the base of which is a travelling conveyor. A fine mist spray of phenolic resin then cements together any two fibres at point of traverse, a method of joining which produces the unusual elasticity of the finished product. A high degree of insulation is made possible by fineness and uniformity of fibre and the complete absence of any coarse-grade material.

After leaving the collecting hood, the material is carried by the conveyor belt through an oven to cure the phenolic resin which cements the fibres together. Rotary shears then trim the mat to correct width, and a guillotine cuts the slabs to required length. In the lower-density grades, material up to 2 in. thick can be packaged in roll form.

Recommended material grade for thermal and sound insulation of rail carriages, diesel locomotives, and railcars is Crown 100, which has a density of 1 lb. per cu. ft. This is available in slab form up to 4 ft. sq. and in thicknesses from 1 in. to 4 in. In roll form the material is supplied up to 48 in. wide and up to 2 in. thick. The cost of Crown 100 is stated to be approximately half the cost of the tissue-faced fine fibres which it replaces.

Where particularly high efficiency is

required, Crown 200 is recommended. This has a density of 2 lb. per cu. ft., and is available in slab form up to 4 ft. sq. and in thicknesses from 1 in. up to 4 in.

The new Crown material is rotproof, odourless, non-hygroscopic, and will not sustain vermin. Transport applications of Crown insulant, which is manufactured by Fibreglass Limited, St. Helens, Lancs., are handled by W. Gilmour Smith & Co., Ltd., Glasgow.

### Pressure Reducing Valves

A NEW range of pressure reducing valves, the "470," is available in sizes from  $\frac{1}{2}$  in. to 2 in. It can be applied to steam, gas, air and liquid services.

The valves are of heavy bronze castings with stainless steel wearing parts. An integral strainer prevents the entry of foreign matter and maintenance is light and easy.

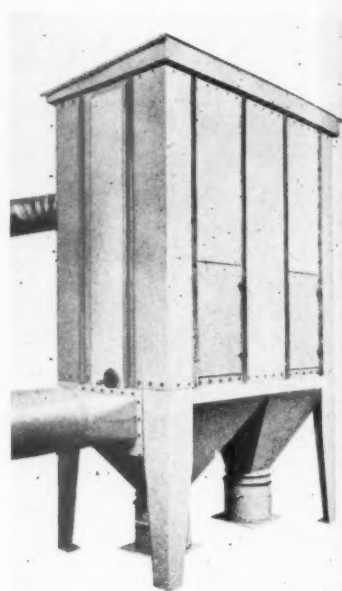
Good efficiency is claimed: downstream pressure variation is slight up to maximum rated capacity irrespective of flow demand, and a tight closure is achieved when demand is nil. Downstream pressure variation resulting from variations in supply pressure also is negligible, and "chatter" is absent. The spherical valve is practically self-cleaning and the metal seating is renewable.

The valves are suitable for upstream pressures up to 240 lb. per sq. in. (steam) or 300 lb. per sq. in. (air or water), and operate at total temperatures up to 450 deg. F. Maximum downstream pressure is 150 lb. per sq. in. for the  $\frac{1}{2}$ -in. and  $\frac{3}{4}$ -in. sizes and 125 lb. per sq. in. for other sizes. Pressure alterations are made by screw adjustment.

Delivery is from stock. Further details can be obtained from the manufacturer, Samuel Birkett Limited, Heckmondwike.

### Coil Cleaner

PYROCLEAN No. 201 is an inhibited acid-base material formulated for the removal of heavy phosphate scale and sludge from heating coils in "Parkerising" and "Bonderising" tanks and similar installations. It also is suitable for de-scaling the barrels used in rotary barrel "Parkerising" plants and for cleaning stand-pipes and jets



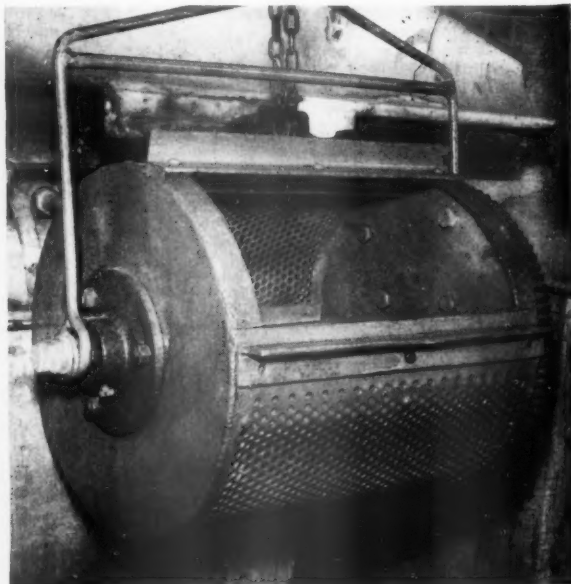
from "Spra-Bonderising" installations. Scope and method of use are as follow:—

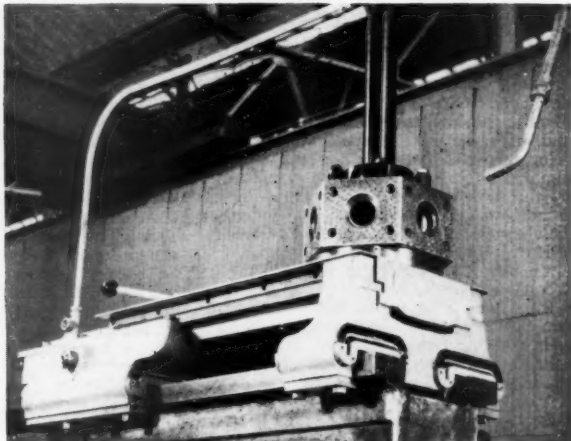
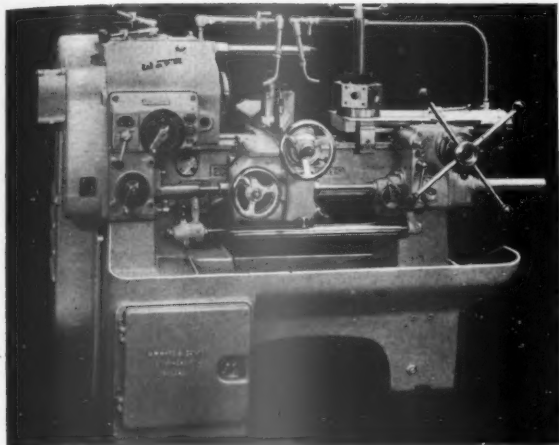
The part to be treated is immersed in a cold solution of the product which, for general purposes, should be diluted with an equal volume of water. When the scaling is heavy, the part can be immersed overnight. Provided that subsequent descaling is frequent, cleaning times thereafter should not be more than an hour. The illustration shows a rotary barrel before and after treatment.

Further details can be obtained from the Pyrene Co. Ltd., Metal Finishing Division, Great West Road, Brentford, Middlesex.

### Fabric-Type Dust Collector

THE Series TF is a fabric type dust collector designed to collect fine dry dusts. The series is available in sizes for handling





from 2,000 to 50,000 cu. ft. of dust-laden air per min.

The outstanding advantage of this range is that the form of unit construction employs a basic element of 16 filter bags, giving a total filtering area of 200 sq. ft. The complete range is obtained (with the exception of the smallest unit) by stacking two or more basic elements together.

Further details can be obtained from the manufacturer, Keith Blackman Limited, Mill Mead Road, London, N.17.

## Capstan Lathes

A NEW and patented design of capstan lathe slide and rest has resulted in the range of Ward capstan lathes being extended by three new models, designated the 2 DS, 3 DS, and 7 DS. The salient feature of the new design is the provision of a sliding bridge, rigidly attached to the forward end of the slide, which is in direct contact with the bed on all its working surfaces. This completely eliminates the normal deflection, when the slide is extended, of an unsupported turret; the turret moving parallel to the bed throughout the stroke. With the additional support under the turret there is thus no limitation on the weight of tooling equipment which may be fitted.

Deflection of the capstan slide resulting from cutting loads is also prevented by the sliding bridge being in contact with all faces of the bed shears. Higher rates of cutting and heavier cuts are thus possible, and a very robust slide and high duty tool holders are provided to accommodate this.

The sliding bridge is fitted with adjustable taper strips to compensate for wear, and Gaco synthetic rubber wipers are fitted to prevent the entry of swarf under the slide. These wipers also serve to retain the lubricant. Mounted on the central column above the hexagon turret is a second coolant jet, connected to the coolant pump with flexible tubing. As the jet travels with the capstan slide there is no need for the operator to adjust the position of the jet during the stroke. Both apron and rest have been modified from those used on the earlier size 2, 3 and 7 Ward capstans. This has allowed the working stroke to be increased by 2 in. on the size 2 and 3 and by 3 in. on the size 7 machine.

The purpose achieved by the new design is to impart to the capstan lathe the combined rigidity and accuracy of the larger turret lathe, while retaining the easy operation which is characteristic of the capstan lathe. The latter primarily results from the rapid indexing of the hexagonal turret made possible between working strokes.

In a recent demonstration of the new machines, the height variation of the turret tool at minimum and maximum stroke positions was shown to be less than 0.0002 in. For this test the turret was loaded with tool equipment weighing 104 lb. The machining demonstration on the 3 DS machine included the plunge forming of a mild steel component from 1½ dia. bar in 3½ min. The form tool had a width of cut of 6½ in. and a chip thickness of 0.020 in. Further particulars of this new range of machines are obtainable from the manufacturer, H. W. Ward & Co. Ltd. Selly Oak, Birmingham.

## Line Earth Loop Tester

A NEW instrument in the "Megger" series has been designed which involves a basically new thought on the testing of circuits which will carry current to earth in the event of a fault. Full mains potential is applied to pass a current of approximately 20 A. through a circuit consisting of live conductor, earth continuity conductor, and earth return path. In other words, the instrument passes the test current through the actual fault path, and the indicating instrument employed may be calibrated directly in terms of the resistance of this path.

A ballistic meter maintains the reading after the current pulse has declined. A

synchronous motor drives a contactor connecting a 10-ohm resistor from live conductor to earth for a period of five cycles (i.e., 0.1 sec.). During this period the current will be of a value determined by the resistor plus the actual resistance of the fault loop in series with the resistor. The meter, connected in parallel with the resistor, can thus be calibrated in terms of the loop.

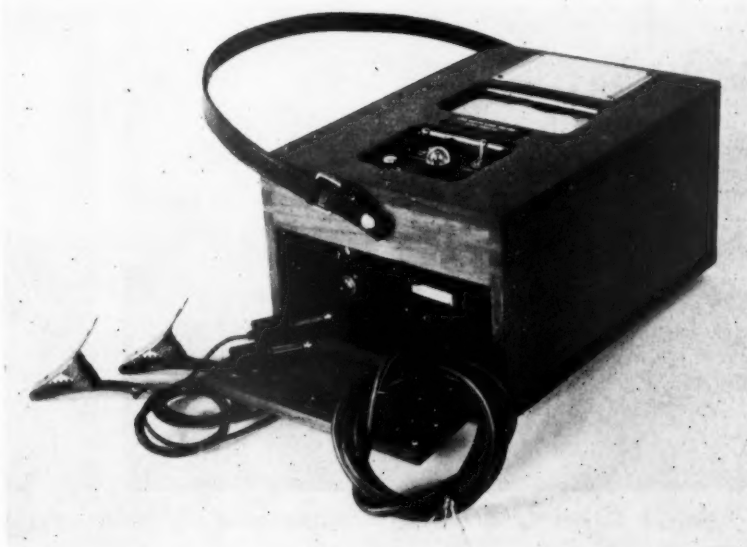
The motor is automatically switched off when the current pulse has been passed, and facilities are embodied for re-setting the meter after testing.

Because of the importance of mains potential on calibration, a mains voltage selector has been included which is adjustable to the mains voltage of the test locality. This is entirely adequate where mains voltage is known but an auxiliary voltmeter can be supplied and may become essential where tests are carried out at the end of a long feeder. An indicator lights up when polarity is correct.

A table gives instantaneous translations of meter readings into fuse ratings or circuit breaker settings.

The instrument also can be used to determine actual earthing efficiency. Three-phase circuits may also be tested.

Further details can be obtained from the manufacturer, Evershed & Vignoles Limited, Acton Lane Works, Chiswick, London, W.4.



## Gold Film for Cab Windows

Brief reference was made in the "New Equipment and Processes" section of our June 26—August 14 issue to a recently-developed means of preventing the formation of mist and ice on the windows of electric and diesel-electric locomotives. This development—the use of a transparent gold-film deposit in laminated glass—was evolved by the Triplex Safety Glass Co. Ltd. for aircraft and has since been in main-line diesel-electric service on the Eastern Region of British Railways. Its use will be extended throughout the country as further supplies become available.

Briefly, its aims are to overcome diffraction effects, provide a heated window with a high resistance which can be run off high-voltage supplies, and give absolutely uniform heating over a given area.

A combined film of gold and metal oxide is deposited electrically on glass in a vacuum chamber. The film is only two 10-millionths in. thick, perfectly transparent, and exhibits a very pale straw colour which absorbs only 5 to 8 per cent light, and can carry up to 1,000W. per sq. ft. It is applied to the inner face of the one-glass component and thus protected from damage and completely insulated in the finished laminated panel. Bus bars are applied to opposite edges of the heated area, which should be square or rectangular. Slight variations in shape may be practicable but their feasibility can be decided only after consultation with the manufacturer. Resistance of the finished panel will depend on the dimensions of the heated area—as an example, a square area of any length of side will have a resistance between bus bars of 10 ohms.

The heated area can be divided in banks, a measure which will increase panel resistance if high-voltage supply combined with low power input is required. In general, a voltage of 24-240 is necessary for successful operation.

Minimum glass thickness to which gold film can be applied is 5/32 in. and to this must be laminated a second glass component so that minimum total thickness is 5/16 in. Small panels may be manufactured in 1/2 in. thickness. Maximum size of flat glass panels to which a gold heating film can be applied is 30 in. x 42 in. Curved panels with a camber not exceeding 1 in. can be produced with the film, but full details of requirements must be submitted to the manufacturer before production is accepted.

Power requirements vary according to intended use. For railway locomotives or earth-moving equipment, the requirement is 50-80W. per sq. ft. Where power input exceeds 100W. per sq. ft., the manufacturer recommends a thermostatic control to prevent over-heating. A sensing element usually consisting of a length of pure nickel wire of 25 or 100 ohms resistance at 20 deg. C. can be embedded in the panel so that it is electrically insulated from the main heating element and yet capable of responding to temperature changes without any serious lag. In these circumstances, a separate control unit will be required and four leads from the panel, two for the main heating current and two for the sensing element. In certain cases a duplicate sensing element is inserted which can be brought into operation should the first element fail. Where a series of windows is to be heated, one sensing element can be used to control more than one window. Suitable control units, built to comply with all Admiralty requirements, are manufactured by Wynstrums Limited, Staverton Aerodrome, Gloucester. These are available for a.c. or d.c. and operate direct from mains voltage.

## Questions in Parliament

### Baggage Examination in Boat Trains

Mr. Philip Bell (Bolton East—C.) asked the Chancellor of the Exchequer on July 30 whether, with a view to encouraging travel to Britain, he would arrange for the Customs examination of baggage of passengers travelling by train from the port of entry to take place in the train, as was done in France.

Mr. F. J. Erroll, Economic Secretary to the Treasury, in a written answer: No. Similar proposals have been considered many times in the past. The conclusion has always been reached that, in the circumstances here, Customs examination of baggage on these trains would be inconvenient for the passengers and frustrate an economical and effective Customs control.

### Alternatives to Withdrawing Train Services

Sir Spencer Summers (Aylesbury—C.) asked the Minister of Transport & Civil Aviation on July 29, when referring to the Transport Users' Consultative Committee cases where the closing of stations would deprive the travelling public of any form of

public transport, whether he would in every instance request provision of alternative services. He also asked the Minister to give a general direction to the B.T.C. to ensure that buses are provided in all these cases.

Mr. Harold Watkinson, answering both questions together, said that the Commission itself always referred proposals to withdraw services or close stations to the T.U.C.C., which invariably took into account alternative services. Although the Commission was under no obligation to provide alternative services, it was willing to co-operate with the Consultative Committees in considering how the needs of the public could best be met.

## Staff and Labour

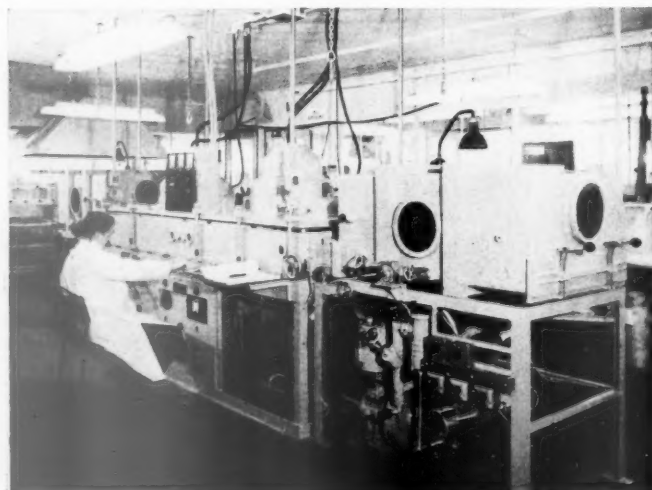
### Redundancy on N.E. Region

On August 24, Mr. M. G. Burrows, Chief Mechanical & Electrical Engineer for the North Eastern Region of British Railways, met representatives of supervisors and staff employed at Shildon Wagon Works. He outlined proposals which had arisen out of the review of wagon requirements from railway workshops in conformity with the modernisation and re-equipment plan, and their effect on Shildon Works. He said that an examination of total railway workshop capacity for constructing new wagons had revealed a surplus and output from Shildon would have to be reduced by one-third. Furthermore, the cessation or reduction in wagon building in other railway works would result in some reduction in the demand for components now being supplied from Shildon. The combined result of these two factors would be an immediate redundancy of some 460 staff.

Mr. Burrows also stated that account must be taken of a further reduced demand for new wagons consequent on the recession in trade generally and this would mean a further reduction in the number of wagons to be built at Shildon in 1960. This would be partly offset by some heavy steel wagon repair work. It was estimated that this further redundancy would affect 70 men.

The redundancy, which would begin to take effect in the next few weeks, would be spread over some four months and would be met in part by retirements and other wastage.

Mr. Burrows said that Shildon wagon works would remain one of the principal wagon building centres of the B.T.C. and it



Overall view of vacuum plant used in the manufacture of gold film window panels



Operator removing sheet of film-bearing glass from the vacuum plant



is hoped that improved trade would warrant some increase in requirements for new wagons after 1960. He added that the redundancy arrangements agreed with the trade unions would be applied, and hoped that in finding alternative work for some of the men affected, assistance would be forthcoming through British Railways Central Bureau of Employment, which is being established.

On the same day, Mr. Burrows also met representatives of supervisors and staff employed at Faverdale (Darlington) wagon works.

As at Shildon, he outlined proposals arising from reviewed wagon requirements from railway workshops and their effect on Faverdale works. An examination of total railway workshop capacity for constructing new wagons had revealed a surplus. After completion of the current building programme, no new wagons would be built at Faverdale.

After completion of scheduled repair work, a redundancy of 30 staff would take place in September and October.

Mr. Burrows said the redundancy agree-

ments would be operated and he hoped that further assistance would be forthcoming through the British Railways Central Bureau of Employment which is being established.

#### London Busmen—Pay Claim

On August 26 a conference of garage delegates representing Central London busmen considered a proposal that a ban on overtime should be imposed in support of the men's claim for a rise of £1 a week and the equivalent of a 40-hr. week instead of the present 42-hr. week.

## Contracts and Tenders

### *B.T.C. orders for electric cables and accessories*

The British Transport Commission has placed orders valued at £290,000 for some 95 miles of electric cables and accessories of various types for the following British Railways' electrification programmes:

London Midland Region: Manchester-Crewe-Liverpool-Birmingham.

Scottish Region: Glasgow Suburban. Eastern Region: Fenchurch Street to Tilbury and Southend; Liverpool Street to Enfield, Chingford, Hertford East, and Bishop's Stortford; Liverpool Street to Chelmsford and Southend (conversion) and Chelmsford-Colchester.

Details of the orders are as follows: British Insulated Callender's Cables, Limited: Supply and installation of 5,000 yd. of cable and accessories for the Eastern Region.

Pirelli-General Cable Works Limited: Supply and delivery of 10,500 yd. of cable for the Eastern Region and 210 accessories for the Eastern and Scottish Regions.

W. T. Henley's Telegraph Works Co. Ltd.: Supply and installation of 17,200 yd. of cable for the Scottish Region, and 6,600 yd. for the Eastern Region.

Enfield Cables Limited: Supply of 66,500 yd. of cable and 250 accessories for the Eastern, London Midland and Scottish Regions.

Aberdare Cables Limited: Supply and delivery of 42,700 yd. of cable for the Eastern and Scottish Regions.

Siemens Edison Swan Limited: Supply and delivery of 18,300 yd. of cable for the Eastern, London Midland and Scottish Regions.

Australian Iron & Steel Limited has placed a contract with the English Electric Co. Pty. of Australia Ltd. for six 400 h.p. diesel-electric locomotives.

British Transport Docks has placed an order with Seawork Limited, for the construction of a twin-grab diesel hopper dredger for use mainly at the ports of Grangemouth and Methil, where over 400,000 tons of spoil require to be removed each year.

British Railways, Eastern Region, has placed the following contracts:—

Joseph Moss & Son Ltd.: construction of Overhead Line Maintenance Depot at Colchester

Yeomans & Partners Ltd.: construction of building as an extension of existing Overhead Line Maintenance Depot at Romford

W. & C. French Limited: construction and laying in of track for brake block pallets and bogies in new shed at Ilford Electric Train Depot

Haymills (Contractors) Limited: provision of relay rooms at Spelbrook, Saw-

bridgeworth, and Bishop's Stortford

J. & J. Dean Limited: alterations and improvements to station buildings at Laindon.

British Railways, London Midland Region, has placed the following contracts:—

D. Lynch: temporary station buildings at Coventry

Harbour & General Works Limited: construction of stanchion bases for crane gantries and sundry works at Crewe Electric Locomotive Repair Shop, also lightweight and main-line diesel depot and ancillary works at Cricklewood

Leonard Fairclough Limited: reconstruction of Handforth Station and adjoining Bridge 80

E. B. Jones & Rawlinson Limited: construction of new signalbox at Manchester Victoria East Junction

The Demolition & Construction Co. Ltd.: sundry buildings and alterations to existing goods shed at Bletchley in connection with flyover junction

D. Anderson & Sons Ltd.: insulated metal roof coverings, cladding, and ventilators for Crewe District Electric Depot

Young, Austen & Young Limited: removal of steam heating and installation of oil heating at Manchester Hunts Bank and Victoria Station Offices

William Hare Limited: supply and erection of steelwork for alterations to high level roof at Manchester London Road Station

The Demolition & Construction Co. Ltd.: Bletchley Flyover earthworks, and construction of intersection bridge over the Cambridge branch

Wm. Townson & Sons, Ltd.: temporary accommodation in connection with reconstruction of Manchester London Road Station

Richards Structural Steel Co. Ltd.: supply and erection of steelwork for new foundry building, Crewe Locomotive Works

Cox & Danks Limited: removal of track and structures between Bramshall West Junction and Grindley, Stafford and Uttoxeter line.

British Railways, North Eastern Region, has placed the following contracts:—

Yorkshire Hennebique Contracting Co. Ltd.: provision and erection of mooring posts, catwalks, and piling for the British Railways jetty at Selby

Shelvoke & Drewry Limited: three fork-lift trucks and ancillaries

J. Ibbitson: repair of roadways in the York Districts

Wright Anderson & Co. Ltd.: manufacture and delivery of steelwork for bridge No. 20, Ardsley

Modern Paviers Limited: repair of roadways in the West Riding Area

Matisa Equipment Limited: one track recording trolley

W. J. Simpson & Son (Bishopthorpe) Ltd.: glass-fibre moulds for York Central Concrete Depot

R. Hudson & Sons (Contractors) Ltd.: new signalbox at Pelaw.

British Railways, Southern Region, has placed the following contracts:—

Carter-Horseley (Engineers) Limited: renewal of bracings to bridge cylinders at Bideford/Torrington

L. & W. Whitehead Limited: new staff accommodation at Wimbledon

Norris Warming Co. Ltd.: installation of heating, hot water supply, cold water supply, and gas services, Victoria Carriage Cleaning Shed

John W. Ridge Limited: reconstruction of platform at Steyning Station

A. Cameron Limited: cleaning, tarring, and painting of bridges, London (Eastern) District.

W. H. Gaze & Sons Ltd.: resurfacing and surface dressing of roads, London (Eastern) District

Winter & King Limited: new concrete roadway at Nine Elms

G. S. Faulkner & Sons Ltd.: new car park at Reigate

Aubrey Watson Limited: resurfacing and surface dressing of roads, footpaths, and platforms, Ashford District

Maurice Hill Limited: re-roofing of engine shed, Salisbury Motive Power Depot

W. H. Gaze & Sons Ltd.: reconstruction of coal road and incidental works at Worcester Park Station.

Winter & King Limited: construction of turning bays and incidental works at Liss (Hants)

G. E. Wallis & Sons Ltd.: period contract for building and civil engineering works, London Area (East)

G. E. Wallis & Sons Ltd.: period contract for building and civil engineering works, London Area (West)

R. Corben & Son Ltd.: period contract for building and civil engineering works, Ashford Area

G. Shears & Son Ltd.: period contract for building and civil engineering works, Eastleigh Area "A"

G. E. Prince & Son Ltd.: period contract for building and civil engineering works, Eastleigh Area "B"

A. J. Dunning & Son (Weyhill) Ltd.: period contract for building and civil engineering works, Eastleigh Area "C"

Holloway Bros. (London) Ltd.: modification to berthing and maintenance depot, Stewarts Lane, Battersea.

The Special Register Information Service Export Services Branch, Board of Trade, has received calls for tenders as follows:

*From Formosa:*

4,700 tonnes of 37 kg./m. rails of 15 m. length made by open-hearth process.

The issuing authority and address to which bids should be sent is the Central Trust of China, Purchasing Department, 68, Yen Ping Nan Road, Taipei, Taiwan (Formosa). The tender No. is US-623. This purchase will be financed by the International Co-operation Administration (I.C.A.), the agency through which the United States Government gives economic and technical assistance to other countries. The closing date is August 31, 1959. The Board of Trade reference is ESB/18796/59/I.C.A.

*From Portuguese East Africa:*

10 items of spares for locomotives including tyres, coupling heads, lubrication pumps, oil distributors and smoke tubes. The issuing authority is the Ports, Railways & Transport Department, Lourenco Marques. The tender No. is 181/59. A provisional deposit of Esc. 12,500 must be made by tenderers. The closing date is August 31, 1959. Local representation is essential. The Board of Trade reference is ESB/18117/59.

*From Vietnam:*

83,000 drop-forged steel sleepers  
20,000 pairs of splice bars  
210,000 fish plate bolts  
887,000 washers  
567,000 bolts  
442,000 cast steel clips  
160 sets of moulded steel bearings  
1 flash-butt welder complete with accessories  
2 ballast cleaning machines  
8 track inspection cars complete with spare parts.

The issuing authority and address to which bids should be sent is the Central Purchasing Authority, P.O. Box H-5, Saigon, Vietnam. This purchase will be financed by the International Co-operation Administration (I.C.A.), the agency through which the United States Government gives economic and technical assistance to other countries. The tender No. is 752-10079. The closing date is September 4, 1959. Copies of tender documents including specifications and conditions can be obtained from the Vietnamese Embassy, 12 Victoria Road, London, W.8. The Board of Trade reference is ESB/18814/59/I.C.A.

*From India:*

26 items of locomotive tyres, including lip type, flangeless lip type, and plain type; wheel centres and tyres.

The issuing authority is the Ministry of Railways, Government of India. The tender No. is G.P. 18 of Rolling Stock 1959-60. Bids should be sent to the Director, Railway Stores, Railway Board, State Entry Road, New Delhi, 2. The closing date for items No. 1-25 is September 1, 1959 and for item No. 26 (wheel centres and tyres), September 2, 1959. The Board of Trade reference is ESB/18156/59.

*From Iran:*

200 bogie tank wagons. The issuing authority is the Iranian State Railways (Procurement Department), Teheran. The closing date is September 5, 1959. The Board of Trade reference is ESB/18044/59.

*From Iraq:*

1,000 carriage and wagon tyres for wheel centre 23½ in., made of acid 58-68 per cent. carbon steel.

The issuing authority is the Government of Iraq, Iraqi Republican Railways Services. The tender No. is IRRS/G/1/59. Bids should be sent to the Director General,

Iraqi Republican Railways Services, Baghdad, Iraq. The closing date is September 12, 1959. The Board of Trade reference is ESB/17738/59.

*From Sudan:*

Supply of permanent way materials. The list of requirements does not include rails.

The issuing authority is the Controller of Stores, Sudan Railways, Atbara. The tender No. is 1952. Details of the requirements can be obtained from the Controller of Stores on application. The closing date is October 14, 1959. The Board of Trade reference is ESB/18568/59.

Further details relating to the above tenders together with photo-copies of tender documents, can be obtained from the Branch (Lacon House, Theobalds Road, W.C.1.).

## Notes and News

**Solus-Schall Limited.**—The telephone number of Solus-Schall Limited sales service, and other departments at 15-18, Clipstone Street, Great Portland Street, W.1, is now Museum 5080 (12 lines).

**Inaugural Run of "Bristolian."**—The weight of the down "Bristolian" from Paddington to Bristol, Temple Meads, on June 15 was some 280 tons, and not 350 tons, as stated in error in our June 26—August 14 issue.

**Longmoor Open Day.**—An open day will be held at the Transportation Centre, Longmoor Camp, Liss, Hampshire, on Saturday, September 12, from 2 p.m. to 6 p.m., when all those who have associations with Longmoor will be welcome. There will be a service on the Longmoor Military Railway connecting with trains arriving at and departing from Liss, Southern Region, on that afternoon, also an augmented bus service to and from the camp.

**Block Train Working of Wagons of Fertiliser.**

—Much of the output of the fertiliser factory recently built by Fisons Limited at Stanfords-Hope, Essex, is consigned by the London, Tilbury & Southend Line of British Railways, Eastern Region. A block train of fully-fitted 22-ton tank wagons containing hot ammonium nitrate leaves the factory nightly, running to Immingham and Avonmouth on alternate nights. In each case the locomotive works through to destination returning the following day with the empties. The tanks are fitted with steam heating coils.

The accompanying illustration taken at Mucking Crossing, Essex, shows one of these new trains, the 8 p.m. from Thames Haven to Immingham hauled by Class "9" 2-10-0 locomotive No. 92183.

**Liverpool Street Station Closed Because of Flooding.**—Heavy rain on August 21 and 22 caused flooding at Liverpool Street Station, British Railways, Eastern Region, putting points and signals out of action between Liverpool Street and Bethnal Green. The station was closed for several hours. Passengers were diverted to Broad Street for Enfield and Hertford East, Fenchurch Street for Southend, and Kings Cross for the Cambridge line.

**First Aid Action Awards, London Midland Region.**—Mr. David Blee, General Manager, London Midland Region, British Railways, recently presented three members of the staff with awards and certificates for prompt and efficient first aid action. The men were: Mr. T. Hartley, Leading-Porter, Manchester Victoria Station (canteen of cutlery); Mr. R. E. Williams, Ticket Collector, Hollyhead (canteen of cutlery); and Mr. F. J. Rigby, Goods-Guard, Burton-on-Trent (combined clock and tea-making machine).

**Exhibition Extension.**—The "Beauty in Trust" Exhibition, sponsored jointly by the National Trust and London Transport Executive at Charing Cross Underground Station, which opened on July 21, will remain open until September 5. The architect for the exhibition was Mr. Dennis Lennon, A.R.I.B.A. Photographs of architectural detail are by Larkin Brothers, and enlargements by R. Fox Limited. Enlargements of displayed photographs are by Harris Displays. Beck & Pollitzer Limited were the contractors.

**British Railways Support Scottish Industries Exhibition.**

—Admission tickets for the Scottish Industries Exhibition which opens in Kelvin Hall, Glasgow on September 3, may be obtained at all British Railways passenger stations in Scotland. Purchasers will be given a free entrance ticket to a locomotive and rolling stock display by British Railways in Central Station, Glasgow, to be held on September 3-19 in support of the exhibition. There, for the first time on public view, will be three of the passenger coaches intended for introduction on suburban lines to be electrified around Glasgow and the Clyde Valley. A diesel train service will run from Glasgow Central (low level) to Kelvin Hall Station which itself will be



Train of wagons from Thames Haven to Immingham near Mucking Crossing, Tilbury Line. Note overhead equipment for electrification in progress

improved. Linking the Edinburgh Festival and the Scottish Industries Exhibition will be a morning train service each day from Edinburgh Princes Street direct to Kelvin Hall Station, returning in the evening. Over 60 special trains from various parts of Scotland, some with cheap travel concessions, will include a number hauled by historic locomotives in pre-grouping liveries.

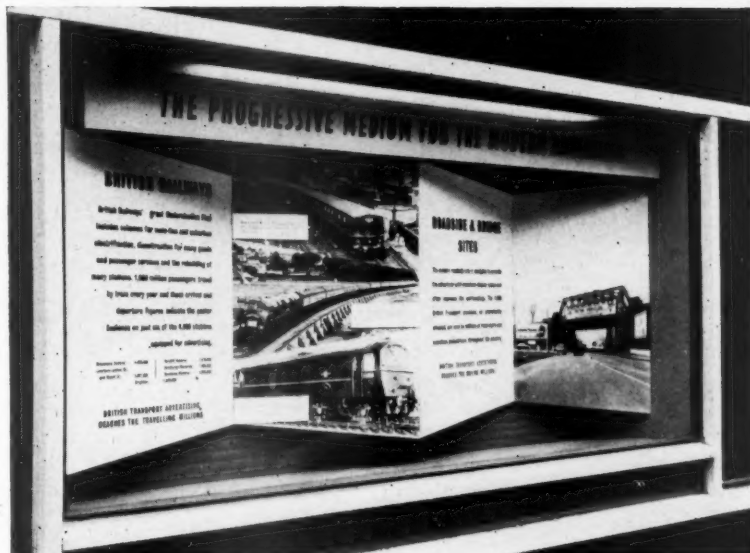
**British Railways, Southern Region, Lecture & Debating Society.**—The opening night for the winter session of the British Railways, Southern Region, Lecture & Debating Society, will be Wednesday, October 14, at the Chapter House, St. Thomas' Street, S.E.1. The guest speaker will be Major-General Wansbrough-Jones, the Secretary General to the British Transport Commission, who will address the Society on "Modernisation in Perspective." Mr. C. P. Hopkins, General Manager, British Railways, Southern Region, and President of the Society, will be in the chair.

**British Transport Advertising Displays.**—"British Transport Advertising—The Progressive Medium for the Modern Advertiser" is the theme of six window displays recently installed at Cranbourn Chambers, Leicester Square, the headquarters of the Commercial Advertising Service, British Transport Commission. The displays illustrate the progress in providing new and improved advertising sites. Each display features a particular aspect of the Commission's transport. The illustration on this page shows the window devoted to British Railways. It includes photographs of some of the latest locomotives, and a few of the most up-to-date British Transport Advertising sites.

**Factory Equipment Exhibition.**—The next Factory Equipment Exhibition, in 1960, the eighth of the series, will be organised by Industrial & Trade Fairs Limited, the exhibition company jointly owned by *The Financial Times* and the George Newnes group, which has acquired the full rights of this exhibition. In future, the Factory Equipment Exhibition will be sponsored jointly by *The Financial Times* and *Industrial Equipment News*, published by Tothill Press Limited, part of the Odhams-Newnes group. The next exhibition will open at Belle Vue, Manchester, on September 21, 1960, while in 1961 it will be held at Earls Court, London.

**Cricklewood Diesel Maintenance Depot.**—Work on the new depot at Cricklewood for the maintenance of the multiple-unit diesel trains being introduced on the St. Pancras-Bedford line of British Railways, London Midland Region, is well up to schedule and the depot will be ready next month. The shed is 62 ft. 4½ in. wide by 580 ft. long and is constructed of steel portal frames, supporting an insulated patent metal deck-type roof with continuous double patent glazing. There are three tracks with full-length pits. For the maintenance and repair of main-line diesel electric locomotives a further shed will be built alongside. In addition it is proposed to provide a locomotive washing plant and cleaning and servicing facilities in the new sidings.

**Schoolboys' Study Courses on British Railways.**—Recently parties of public and grammar schoolboys took short study courses in the North Eastern Region, British Railways. One party visited several railway installations in the region to study mechanical, electrical and carriage & wagon engineering; another studied the work of the Chief Civil Engineer's Department. This party visited engineering installations in the course of construction. The Eastern Region



■ Railway window in advertising display at headquarters of B.T.C. Advertising Service

arranged a similar short works course in the Chief Mechanical & Electrical Engineer's and the Carriage & Wagon Engineer's Departments at Doncaster. This programme included tours of the locomotive and carriage & wagon works, motive power depots, and so on. The courses were arranged in conjunction with the Public Schools Appointments Bureau and the Central Youth Employment Executive, Ministry of Labour.

**London Midland Railway Mayors.**—At a luncheon at Euston on August 21, Mr. David Blee, General Manager of the London Midland Region of British Railways, personally congratulated the Region's mayors for this year. The illustration on this page shows Mr. Blee (seated) among (left to right): Mr. A. J. Pearson, Assistant General Manager; Alderman M. E. Boggin, Mayor of Wallasey; Mr. J. F. McDonnell, Mayor of St. Helens; Mr. H. A. Aidley, Regional Establishment & Staff Officer; Mr. W. J. Hunter, Mayor of Carlisle; Mr. E. W. Arkle, Director of Traffic Services; Councillor

E. S. Jones, Mayor of Dukinfield; Mr. R. W. Crawshaw, Public Relations & Publicity Officer; Mr. C. G. Cousin, Mayor of Aylesbury; Mr. J. W. Tonge, Internal Relations Officer; Mr. S. L. Hill, Sheriff of Nottingham.

**British Wagon Co. Ltd., New Branch.**—This company has opened a new branch at 71, Grosvenor Road, Tunbridge Wells. It will be managed by Mr. K. Ashcroft.

**Retired Railway Officers' Society.**—The annual autumn luncheon of the Retired Railway Officers' Society will be held at the May Fair Hotel, Berkeley Street, London, W.1, on November 10, at 12.30 for 1 o'clock.

**Third Stage of L.T.E. Trolleybus Conversion.**—The third stage of the London Transport £10,000,000 scheme of converting trolleybus routes to diesel bus operation took effect on August 19, on trolleybus routes 661, 663, 691, and 693. Conversion of the routes made it possible to introduce new through facilities and extensions, and inte-



Mr. David Blee, General Manager, London Midland Region, British Railways, (seated) congratulates London Midland railway mayors (see reference on this page)



gration with existing bus routes. The routes affected are in East London. The trolley-buses displaced were operated from Bow and Ilford depots. Ilford depot is closed and the staff transferred to other L.T.E. garages. Bow depot has been converted for diesel bus operation. Drivers and maintenance staff in both depots have taken special conversion courses to prepare them for work with diesel buses.

**Mansion House Association on Transport.**—From September 1, the address of the Mansion House Association on Transport will be: Murray House, Vandon Street, Westminster, S.W.1.

**D.P. Battery Co. Ltd., New London Office.**—During the first week of September the London office of the D.P. Battery Co. Ltd. will move to new premises at 137, Victoria Street, S.W.1. The telephone number and telegraphic address remain unaltered.

**Walsall Engine Sheds converted for Diesels.**—Work on the conversion of the entire Walsall Motive Power Depot, British Railways, London Midland Region, into a diesel unit maintenance depot is well forward and it is expected to be in operation by the end of October. Included in the conversion is a diesel oil fuelling installation of 28,000 gal. capacity. Some 100 diesel units will be dealt with at the depot.

**The 1959 Brancker Memorial Lecture.**—The 1959 Brancker Memorial Lecture, arranged by the Institute of Transport, due originally to have been held in April, will take place at 5.45 p.m. on Monday, September 14, in the Jarvis Hall, 66, Portland Place, London, W.1. Captain E. V. Rickenbacker, Chairman, Eastern Air Lines, Inc., will speak on "World peace through air transportation." The meeting will be open to visitors, without ticket.

**The Institution of Locomotive Engineers.**—Mr. R. A. Smeddle, Chief Mechanical & Electrical Engineer, British Railways, Western Region, Swindon, will give his Presidential Address to the Institution of Locomotive Engineers on Tuesday, September 22, at 5.30 p.m., at the Federation of British Industries, 21, Tothill Street, Westminster, by kind permission of the Council. Before the delivery of the Presidential Address the awards for papers read during the 1958/59 Session will be presented by Mr. R. Arbuthnott, the Retiring President.

**Emergency Loan of Ship to British Railways for Dun Laoghaire Service.**—The Isle of Man Steam Packet Co. Ltd. received a request from the British Transport Commission at 3 p.m. on August 6 to lend a ship to take the night sailing from Dun Laoghaire to Holyhead because of a breakdown in British Railways ss. *Hibernia*. The Isle of Man Line *Snaefell* had berthed at Douglas, I.O.M., from Fleetwood about 1 p.m., and was immediately made ready to sail. The vessel left Douglas at 4.45 p.m. for Dun Laoghaire, worked the night service thence to Holyhead, and was back at Douglas next morning.

**New British Railways Cargo Ship on Channel Islands Service.**—British Railways new motor cargo ship *Elk* is now in service between home ports and the Channel Islands. It was built specially to handle bigger cargoes on the Southern Region Southampton and Weymouth to Channel Islands routes. In September it will be joined by the sister ship, *Moose*, to replace three smaller vessels. The twin-screw *Elk* is driven by two 900 b.h.p. diesel engines and has a designed speed of 14 knots. The equipment includes echosounding apparatus, radar, and V.H.F. radio. The vessel was built at Lowestoft by Brooke Marine and named in April by Lady Warter, wife of Sir Philip Warter, Chairman of the Southern Area Board of the B.T.C.

## Forthcoming Meetings

September 3 (Thu.).—The Model Railway Club, at Caxton Hall, Westminster, London, S.W.1., at 7.45 p.m. A talk on "My railway experiences," by Mr. R. Hardy.

September 4 (Fri.) to September 7 (Mon.).—The Institute of Transport, week-end course at Magdalen College, Oxford. Sir Reginald Wilson, Immediate Past President, will preside.

September 4 (Fri.).—The Railway Club, at the Royal Scottish Corporation, London, E.C.4., at 7 p.m. Paper on "The railways of Scotland, 1899-1959," by Mr. H. A. Vallance.

September 8 (Tue.).—The Permanent Way Institution, Leeds & Bradford Section, in the British Railways Social & Recreation Club, Ellis Court, Leeds City Station, at 7 p.m. Film show.

September 15 (Tue.).—The Railway Correspondence & Travel Society, Birmingham & West Midland Branch, at the Engineering Centre, New Street, Birmingham, at 7.15 p.m. Paper on "Some notable speed records and test runs," by Mr. John Clay.

## Railway Stock Market

The upward trend in stock markets in evidence for the past few weeks received a check when Wall Street suffered a sharp decline, but later there was a general rally. The Wall Street set-back was due to speculative selling when sentiment came under the influence of talk that U.S. industrial activity might slump if there were real easing of international tension which justified a substantial reduction in armaments work. Renewed confidence in prospects of a Conservative victory in the general election inspired the latest big upswing in markets.

There was again only moderate activity in foreign rails which provided few movements of importance. Antofagasta ordinary stock was 15½ compared with 15¼ a week ago, while the preference stock gained two points at 27, and the 5 per cent Bolivia debentures remained at 86. Costa Rica ordinary stock at 15 was the same as a week ago, as were Chilean Northern debentures at 60. Paraguay Central prior debentures were 23½ and Guayaquil & Quito assented bonds 81½. United of Havana second income stock kept at 6 and Brazil Railway bonds were also quoted at 6.

Canadian Pacific reflected the Wall Street rally and at \$51½ compared with \$51¼ a week ago. The 4 per cent preference stock was steady at 58 and the 4 per cent debentures at 64½. White Pass shares were \$15½. Nyasaland Railways shares kept at 10s. 6d. and the 3½ per cent debentures at 58½. West of India Portuguese capital stock was 106½. Barsi ordinary stock was quoted at 29½. San Paulo Railway 3s. units kept at 1s. 6d. and Mexican Central "A" bearer debentures were 59½.

Movements in shares of locomotive builders and engineers have been more numerous. Beyer Peacock 5s. shares improved to 8s. 1½d., Charles Roberts 5s. shares were better at 12s., Wagon Repairs 5s. shares eased from 8s. 6d. to 8s. 3d. and Gloucester Wagon 10s., shares were 18s. 3d. G. D. Peters were 20s. 9½d. and Birmingham Wagon 26s. 7½d. with North British Locomotive 13s.

Compared with a week ago, Pressed Steel 5s. shares have risen from 28s. 9d. to 31s. 6d. and Dowty Group 10s. shares from 37s. 9d. to 38s. 3d. Babcock & Wilcox, were helped by some buying by German investors, but at 53s. have lost part of their recent good advance. Tube Investments rose from 88s.

to 90s. and T. W. Ward at 97s. 3d. were 4s. higher on balance.

Pollard Bearing 4s. shares held steady at 29s. 1½d. which compares with 28s. 9d. a week ago. Ruston & Hornsby were 23s. 3d., Metal Industries 56s. 3d. and Stone-Platt Industries shares at 50s. 9d., compared with 50s. a week ago. Associated Electrical have risen from 62s. to 62s. 9d., General Electric from 36s. 9d. to 37s. 9d. and English Electric from 44s. 9d. to 45s. 6d. Steel shares held their further good advance, United Steel rising from 37s. 9d. to 40s. 7½d., Dorman Long from 33s. 9d. to 34s. 6d. and Steel of Wales from 30s. 3d. to 30s. 7½d. They remained a lively market and looking ahead may of course fluctuate according to views which gain ground about the general election. The prevailing City assumption is that the election when it comes will kill the nationalisation threat and that then steel shares would be worth up to 10s. over current prices.

## OFFICIAL NOTICES

**RAILWAY SURVEYOR/DRAUGHTSMAN** required by Railway Siding Constructional Engineers.

Applicants must have trained in Railway Draughtsmanship, be able to survey existing trackwork, plot same to working scale and be fully conversant with theodolite and level practice.

Men (not over 30 years of age) with knowledge of Railway Standard Specification layouts preferred and only those who have specialised in the survey and design of railway trackwork in the United Kingdom need apply.

Conditions of employment include provision of car, all travelling and general expenses, five-day week on rota system, comprehensive superannuation scheme, etc. Assistance given with housing.

Write in first instance, stating age, experience and salary required to: Sidings Construction Department Manager, Thos. W. Ward Ltd., Albion Works, Sheffield 4.

### PORT OF MANCHESTER

**PERMANENT** Way Supervisor required for main area railway system. Applicants must have good relating experience, including siding connections. The position requires a good leader and organiser, energetic and practical. Salary £665, rising to £715, with prospects of promotion if found suitable. Contributory Superannuation Scheme. Apply in writing with copies of references to the Resident Engineer, The Manchester Ship Canal Company, Trafford Road, Manchester, 17.

### GOVERNMENT OF INDIA MINISTRY OF RAILWAYS (RAILWAY BOARD)

**THE MINISTRY OF RAILWAYS** (Railway Board). Government of India, invites from reputed and established manufacturers of Electric Locomotives tenders for technical collaboration for the supply and progressive manufacture of 42 Nos. 25 K.V., 50 Cycle A.C. Freight Locomotives in India in the Chittaranjan Locomotive Works of the Government of India at Chittaranjan, West Bengal (India). The tender documents excluding drawings and specifications can be had on payment from any of the following offices:

- (i) Research, Design & Standardisation Organisation, Ministry of Railways; "F" Block, Connaught Place, New Delhi.
- (ii) The Director General, India Store Department, Government Building, Bromyard Avenue, Acton, London, W.3.
- (iii) Director, India Supply Mission 2536 Massachusetts Avenue, N.W., Washington 8 D.C.

The particular specification No. EL 104.59 and the accompanying drawings can be had on additional payment from the Research, Design & Standardisation Organisation, Ministry of Railways, Chittaranjan, the Director General, India Store Department, London, and the Director, India Supply Mission, Washington.

Offers should reach the undersigned not later than 12 noon on November 9, 1959.

Please quote reference G.P. 19/59-60.

Qurban Singh, Director, Railway Stores, Railway Board, State Entry Road, New Delhi, 2.

### FOR SALE

4 No. 0-4-0 Ruston Mark 165 D.S. Diesel Mechanical Locomotives—all in excellent working order. Weight 28 tons. 22 ft. overall. Powered by Ruston 6 V.P.H. engines.

Transmission is through S.L.M. four-speed, oil operated gearbox to a bevel reduction and reverse gear, to a Jack Shaft drive.

These locomotives are offered as a fleet together with a large quantity of spare parts.

For further particulars and arrangements for inspection, please apply to: The Steel Company of Wales Limited, Sundry Sales Department, Abbey Works, Port Talbot.

